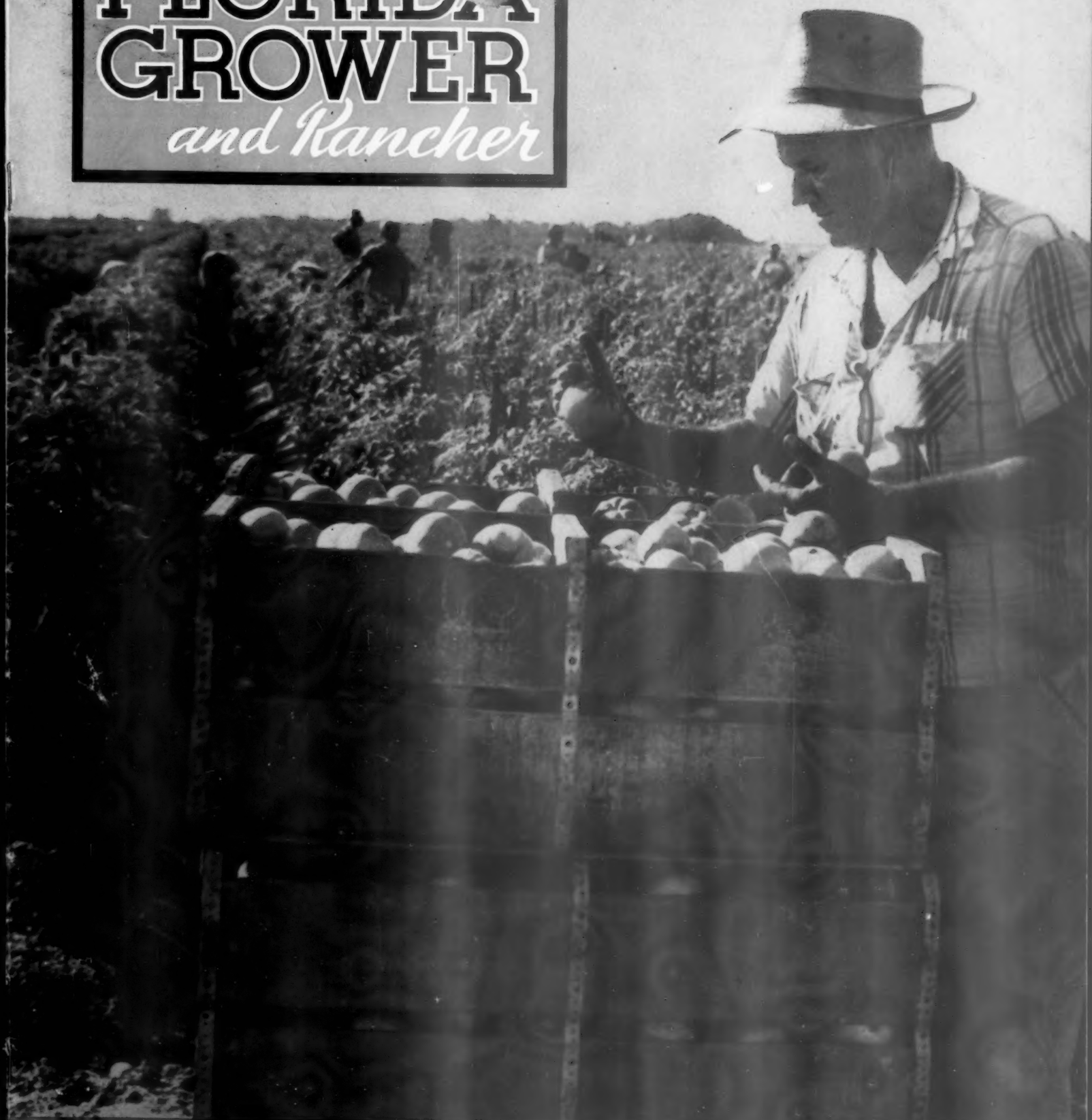
FLORIDA GROWER and Rancher



A Very Merry Christmas and a Happy New Year

Price 10 Cents
December 1958

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POWER HOE AND POWER BANKER!

SAVES ON GROVE MAINTENANCE!

CHECK THESE FEATURES:
- Pulverizes and aerates soil
- Patented Anti-Wrapping device
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- cuts full 48"
- Employs tractor's Hydraulic System
- 22 Tine-Blades 4¼" apart on 2" Rotor Shaft
- Interchangeable with power hoe in minutes
- May be used to ring trees for water
- Low-low maintenance costs
- Thoroughly tested and proven in Florida groves

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OCOEE, FLORIDA

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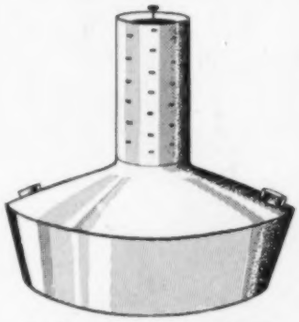

Racebilt Heaters are also efficient and economical protection for vegetable crops and home shrubbery. The low cost makes it practical for many uses.

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The all new Race Grove Heater is small, compact and light weight . . . Overall size is only 16 inches from fuel base to top of stack. MOST IMPORTANT OF ALL—Race Heaters are designed to be placed under trees so all heat moves directly into the trees for maximum protection—there's no heat loss! The base of heater may be placed in a small scooped-out hole in the ground (few strokes of hoe will do it) and only 8 to 10 inches extends above ground surface. Race Grove Heaters burn practically clean and the small, compact size provides ease of storing and handling.

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Manufacturers of Products for Farm, Home and Industry
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...ver . . .

...nth's cover shows farm foreman I. L. Tyler as he checks the maturity of tomatoes being picked at the J. P. Harlee Farms, Palmetto. The photo was taken in early November, as the first fruit were beginning to mature sufficiently to be harvested.

Harllee Farms specializes in tomatoes and has an annual planting of between 600 and 1,000 acres. Tyler has been with the well-known Palmetto operation since 1940.

* * *

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Season's Greetings from
Florida Grower & Rancher

How smart are YOU?

1. What did the herald angels sing?
2. Under what circumstances was the Christmas hymn *"Silent Night"* written?
3. In law, what is "an act of God"?
4. About how long have lenses been used?
5. What causes the face of "the man in the moon"?
6. Panama joins what country of South America?
7. How many years are there from 20 B.C. to 50 A.D.?
8. Is a brant a goose or a duck?
9. Do rats swim?
10. What is meant by "a place in the sun"?

(Answers on Page 8)

FLORIDA GROWER and RANCHER

TAMPA, FLORIDA — DECEMBER, 1958

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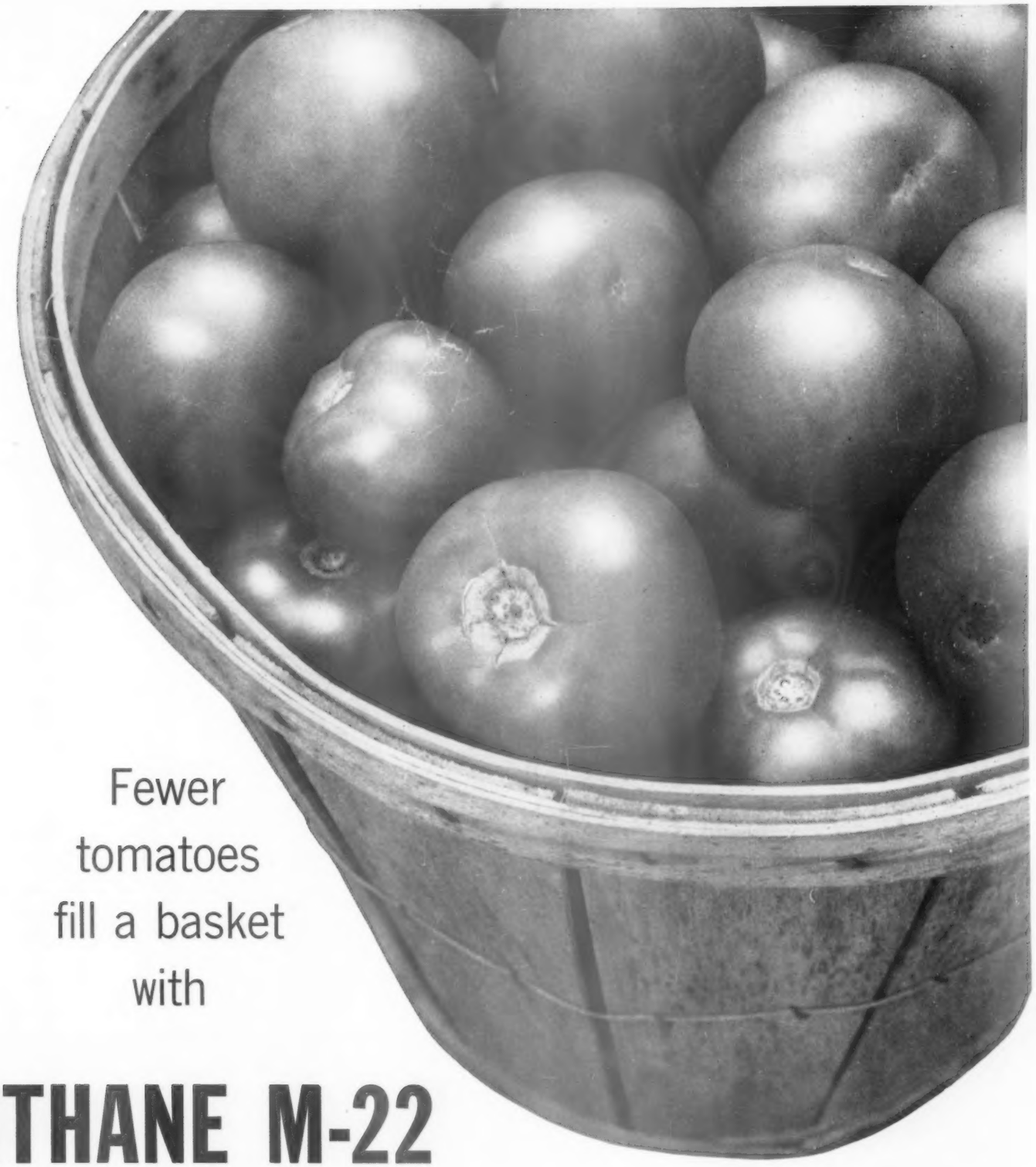
COMING EVENTS

Dec. 1-3: Soil & Crop Science Society meeting, St. Petersburg.
Dec. 4-6: Polk Youth Show, Bartow.
Jan. 9: Florida Angus Bull Sale, Belle Glade.
Jan. 9: Range Cattle Station Field Day, Ona.
Jan. 10: Santa Fe Sunshine Sale, Alachua.
Jan. 13-18: DeSota County Fair & Livestock Exposition, Arcadia.
Jan. 14-17: Pasco County Fair, Dade City.
Jan. 20: Ocala Bull Sale, Ocala.
Jan. 23-31: Palm Beach County Fair, West Palm Beach.
Jan. 26-31: Manatee County Fair, Palmetto.
Jan. 26-31: SE Fat Stock Show, Ocala.

* * *

"Trouble with most of us, we don't think big enough."



Fewer tomatoes fill a basket with

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Growers using DITHANE M-22 (maneb) find it takes fewer tomatoes to make a bushel. This follows from the way DITHANE M-22 controls diseases, helps the vine produce more big ones. DITHANE M-22 keeps down late blight, gray leaf spot, early blight and Septoria leaf spot. DITHANE M-22 protects the stems, fruits and foliage from *ALL* important fungous diseases—helps keep the vines lush and green, the tomatoes free of disease injury. Apply DITHANE M-22 and see.

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Citrus CLOSE-UPS

By FRED P. LAWRENCE

Citriculturist
Florida Agricultural Extension Service

Too Much Cover Is No Better Than None In the case of cultivation and cover cropping, there is a wide divergence of opinion in this state. And since there is little or no experimental data available, some growers, in my opinion, are going from too little to too much.

Each winter, clean cultivated young groves planted on the sandy soils of interior Florida are plagued with wind erosion and "sand blasting."

Yet, if left alone, the standing cover crop impedes air drainage and creates a cold hazard. Too, after the first killing frost, the dead grass becomes a fire hazard.

Because of these factors, it seems logical that the cover crop should be chopped in the fall and subsequently disked only sufficiently to eliminate a fire hazard. The remaining straw mat will, in most cases, serve to hold the soil in place and eliminate excessive wind erosion.

Odd Jobs That Pay! Since December is usually a dead month insofar as cultural practices are concerned, why not use the time profitably by doing the following?

(1) Remove undesirable trees. (2) Paint and repair machinery and buildings. (3) Take inventory.

Irrigation Do not allow your trees to suffer for water while you wait for rains. Dry trees are more susceptible to frost damage and will be more subject to twig dieback in the spring.

Try Rye Since we have had so many requests for information on how to reduce wind damage during February and March, we have taken the problem up with many research workers and professional people. Their unanimous opinion is:

Proper management of the cover crop offers the best answer.

What about the fellow who has already plowed under his cover crop? Or the one who failed to grow a sufficient one?

J. R. Henderson, Extension agronomist, suggests he try Florida black rye at the rate of three pecks of seed per acre. He states that prior to seeding the rye (in young groves), 300 to 500 pounds per acre of an 8-8-8 fertilizer should be broadcast.

Henderson is further of the opinion that—since the rye will sprout within a week or 10 days under favorable conditions, and reach a height of six inches in about six weeks—the rye could be planted during the first 15 days of December and not reach sufficient height to interfere with air drainage prior to the passing of the severe cold weather.

California Conclusions Our friend Bob Norris, Lake County Agricultural Agent, had the good fortune to visit California a few weeks ago and to visit groves, growers and research workers.

When he returned, he wrote us a lengthy report containing a wealth of information. After reading it, we felt as though we, too, had visited California. Although the report is too long to reproduce here, we would like to call attention to a few of his conclusions:

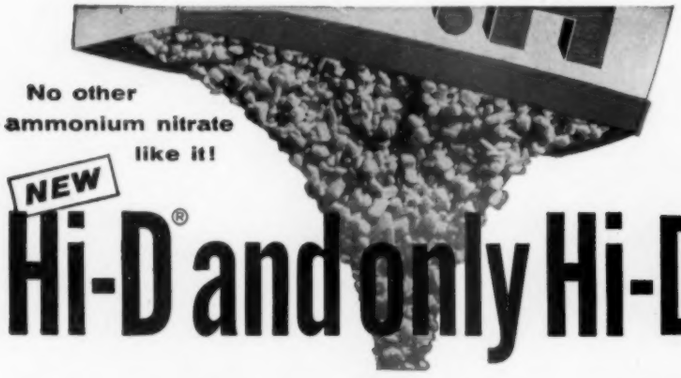
"The trend in California is definitely toward closer planting with careful plans developed to heavily prune alternate trees so that the free movement of air is not impaired, and so the trees can be easily removed without deep regret on the part of the owner.

"There is much interest there in the use of dwarfing stocks, and this ties into the closer spacing picture. I, personally, feel that this system needs careful and thorough study here. The apple growers in the Yakima country are making great strides in this direction by the use of dwarfing interstocks.

"Production costs are high but California will be a worthy competitor for the citrus market, especially fresh citrus, for a long time to come. Her northern-produced navel oranges are very fine and will compete on the fresh market with Florida's valencias. Volume is going down, but may come up some as new areas in Southern California are being brought in.

"The fresh lemon deal appears to be on a sound basis, and the frost nucellars are responsible for a heavy increase in the production of lemons.

"Fruit for processing into con-



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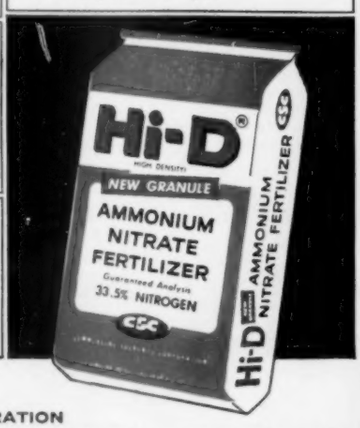
4. Free Flow. Hi-D flows freely even on hot sticky days. Because of its super dryness, high density, and special shape, Hi-D doesn't gum-up, doesn't stick, clog, cake or bridge.

5. Two-Speed Fertilizer Action. Hi-D supplies a total of 33.5% nitogen in two equal "servings." 16.75% is *nitrate* nitrogen that's immediately available, 16.75% is *ammonia* nitrogen for follow-up feeding during the growing season.

6. Guaranteed To Store a Full Year. Made dry. Delivered dry. *And stays dry.* So much so that Hi-D is *guaranteed* to store well, under normal conditions, for one full year.



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centrate and chilled juices will remain Florida's big deal, according to the thinking of some of the students of the industry.

"Scientific pruning to control close planting, rejuvenate weak trees, increase the bearing surface in trees, and, in the case of lemons, to greatly increase the size of the crop might well be given more study here.

"There are many other important considerations not mentioned here. It is good that there is a friendly and rather complete interchange of ideas and research investigations between the two producing states of Florida and California."

Delay Explained The book, *"Florida Guide to Citrus Insects, Diseases and Nutritional Disorders in Color,"* has been delayed in publication. Now it is expected to be available this month. The printer explains that he could have completed the book sooner, but that the color illustrations would not have been as satisfactory as they will now be.

The 200-page book contains 96 pages (117 illustrations) of four-color plates. The printer says he expects this book to be the best one ever printed in this field.

It will sell for $4 a copy. Orders are being taken by the Editor, Agricultural Experiment Station, Gainesville, Florida.

* * *

"We broke our engagement and I gave him back his turtle."

New Market Seen For Pink Grapefruit

CANNED single-strength juice from red grapefruit, tinted with the attractive natural color of the fruit. . . .

This is the latest pleasing possibility for the consuming public. It also offers promise of another market for Florida grapefruit growers.

While attractive in fresh grapefruit, the pink or red coloring has created a problem in canning juice from these varieties by the methods used for processing juice from "white" or uncolored grapefruit.

However USDA research workers have now developed a method for processing pink grapefruit. Their findings are reported in a pamphlet, *ARS 72-12, Production of Canned Pulp-Fortified Red Grapefruit Juice.*

The new processing method for the pink grapefruit juice involves incorporation of small quantities of color-bearing pulp to give the canned juice the desired tint. It also overcomes the difficulties previously encountered in canning juice from colored fruit.

Naringin, a bitter component of grapefruit, is a factor which must be considered in the preparation of pulp-fortified grapefruit juice, and levels of both naringin and color are subject to seasonal variations. These variations and their interrelationships with suspended solids —along with a description of the preparation methods—are discussed in the booklet.

Single copies of the pamphlet may be obtained without cost by requesting it from either the U. S. Fruit and Vegetable Products Laboratory, P. O. Box 388, Weslaco, Texas, or from the Southern Utilization Research and Development Division, P. O. Box 7307, New Orleans 19, Louisiana.

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Herbicides in Granular Form Widen Weed Control Prospects

WIDER POSSIBILITIES for chemical weed control through using herbicides in granular form have been demonstrated recently.

Granular herbicides remain in contact with crop foliage only momentarily before reaching the soil where they are needed to kill emerging weed seedlings. This momentary contact does the foliage little or no harm, scientists of USDA's Agricultural Research Service found.

Consequently herbicides that are highly injurious to crops in spray form may—under some conditions—be used in granular form with safety.

Development of this method of applying herbicides was stimulated by success in using granular insecticides on certain crops. The materials consist of carriers such as granular Fuller's earth or vermiculite impregnated with weed-killing chemicals.

These herbicidal preparations have been used effectively in cooperative experiments in Maryland, New Jersey, and Texas for control of emerging weeds in several horticultural crops. These crops included tomatoes, Irish potatoes, and strawberries, following the last cultivation.

Some herbicides—such as CIPC [isopropyl N— (3-chlorophenyl) dinitro ortho secondary butylphenol]—used separately or in combination, have also been applied successfully in granular form for experimental control of weeds in a wide range of woody ornamental nursery-stock species.

Encouraging results of recent research with granular herbicidal formulations have stimulated industrial concerns to provide most of the new herbicides in granular as well as other forms to aid comparative appraisal by researchers.

In addition, some experiments have been made in pelletizing a few of the new herbicides—such as 2, 3, 6-TBA, fenuron, and monuron—for use as a soil treatment to control brush.

Federal-State cooperative trials in Oklahoma, Texas, Arizona, Missouri and elsewhere previously indicated the effectiveness of these chemicals when applied to the soil as a spray in concentrated bands to kill the roots of woody plants.

This method also kills grass in narrow bands where the chemicals are applied. However grass between the bands is uninjured . . . and the absence of competition of the brush enables grasses and other forage species to re-establish themselves quickly.

Such bands of herbicide, placed six feet apart, gave a 90% kill of shinnery oak at Woodward, Oklahoma when fenuron was used at 2.6 pounds per acre. Ten pounds per acre of 2, 3, 6 -TBA gave 93% control when applied in the same manner.

In pellet form, however, such herbicides can be applied in the desired concentrations to individual spot areas of brush. This can be done either by airplane or ground equipment, the experimenters believe.

Success of some experiments has led to proposals for limited use of pellets in brush control in Texas.

Granular formulations of soil-sterilant herbicides have also shown promise for the control of certain aquatic weeds.

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Erosion of Soil Can Be Helpful

SOIL EROSION can be constructive as well as destructive.

Much has been said and written about the dangers of soil erosion. They include removing fertile top soil, leaching of expensive fertilizer, depletion of soil structure, and formation of rills and gullies.

But while all of this is true, it is not the complete picture. Dr. R. E. Caldwell, University of Florida soils professor, points out:

Actually, there are two different classes of erosion—"natural" or "geologic" and "accelerated" erosion.

Geologic or natural erosion is the wearing away and removal of soil materials. This normally occurs with the native vegetation present on the land.

On the other hand, accelerated erosion is speeded up over normal erosion for a particular soil. This is usually due to mismanagement by man, Dr. Caldwell adds.

Natural erosion is responsible for the rounding-off of the mountains and the filling-in of valleys. And it is more conducive to soil formation and crop production.

Accelerated erosion can remove the weathered and leached upper layers. This brings the fresher, unweathered minerals closer to the earth's surface and plant roots.

If erosion of any type is removing important soil material to the detriment of the present or future crops, Dr. Caldwell says, adequate control measures should be adopted.

Such control measures might include crop rotation, strip cropping, terracing, or the maintenance of a continuous vegetative cover.

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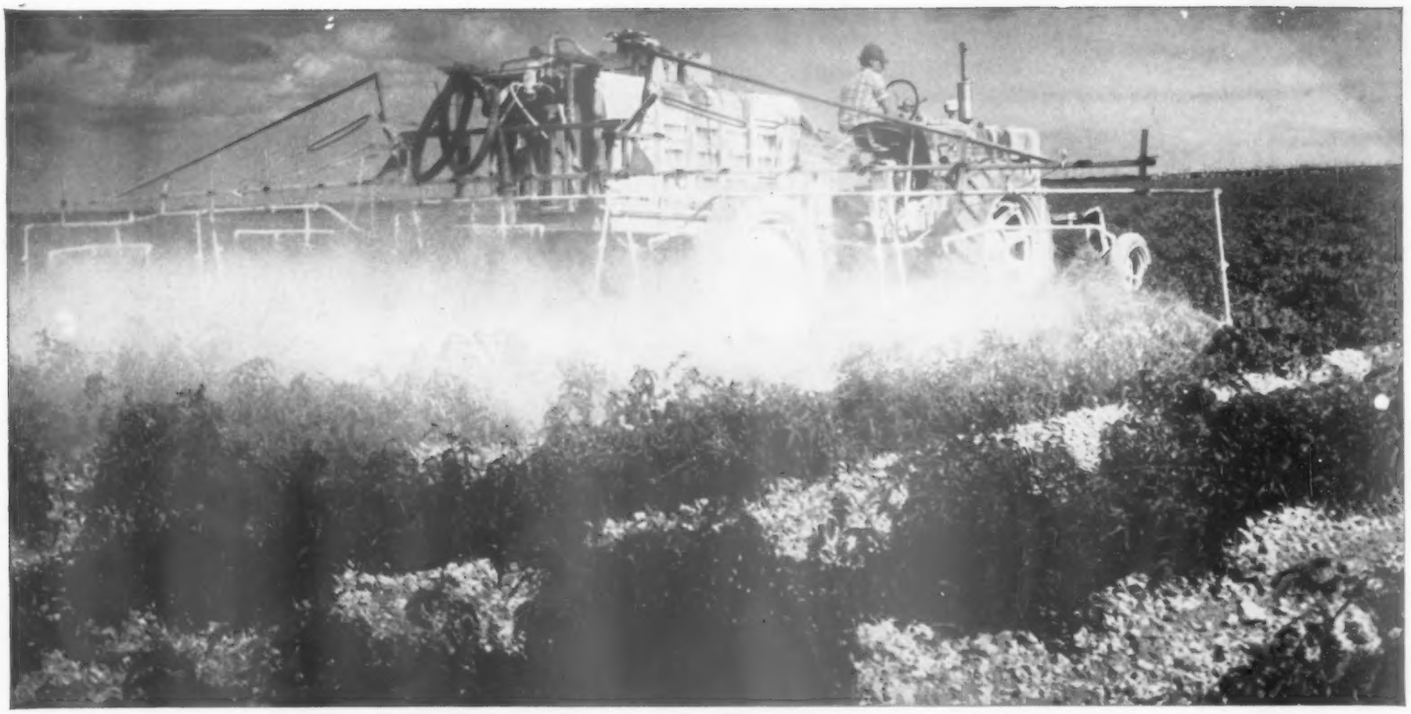

• Spraying with Du Pont "Manzate" maneb fungicide controls early and late blights, and gray leaf spot . . . helps boost your yields of better quality tomatoes through a longer growing season.

Protect vegetable crops...harvest more No.1's with Du Pont's wide selection of organic fungicides

Du Pont offers Florida vegetable growers the widest selection of fungicides available for the most effective control of major fungus diseases. Du Pont "Manzate" maneb, "Parzate" in nabam and zineb formulations and "Zerlate" ziram—all are fungicides with outstanding records of performance in disease control. All are fully registered for use in Florida.

And now Du Pont announces a new disease control chemical for use in Florida—"Thylate" thiram fungicide. "Thylate" is recommended for the control of early blight and rhizoctonia in celery-plant beds and gray mold on tomatoes.

MANZATE®

Maneb Fungicide

Unequaled in late blight control in Florida tests

Late blight was reported as the most serious disease encountered during spring '57 tests of fungicides by the Everglades Experiment Station. In fact, one of the worst outbreaks in the history of tomato production occurred in many areas of South Florida in the spring of 1957. And maneb was found to be more effective in the control of late blight than any other material tested.

Use "Manzate" on tomatoes, beans, celery, cucumbers, onions, potatoes and watermelons to cut disease losses straight through the season.

PARZATE®

Nabam and Zineb Fungicides

Mild on plants—tough on diseases!

"Parzate" nabam and zineb fungicides offer low-cost disease control on many crops such as watermelons, cucumbers, potatoes, lettuce, tomatoes, sweet corn, celery and peppers. "Parzate" resists washing-off because the small particles stick to leaves and fruit.

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High in fungicidal efficiency and adhesive properties

Use Du Pont "Zerlate" Ziram Fungicide—as a spray or dust for effective control of many plant diseases. "Zerlate" has good adhesive properties . . . controls early blight on potatoes, early and late blights on celery. Use "Zerlate" to control downy mildew and other leaf diseases on cucurbits.

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Latest vegetable disease control development

The latest addition to Du Pont's line of fungicides—"Thylate" has been thoroughly tested and has given outstanding control of early blight and rhizoctonia in celery-plant beds and of gray mold (botrytis) of tomatoes.

On all chemicals, follow label instructions and warnings carefully.

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Rid Cattle of Winter Lice

DON'T LET LICE on cattle cheat you out of profit dollars this winter, advises Dr. Leonard E. Swanson, Experiment Station parasitologist.

Winter gains in beef cattle may be reduced by lice. In the dairy herd, lice cut down on milk production.

It's time to treat for lice when you see cattle rubbing on trees, posts and fences. If you delay treatment, patches of bare hide will appear where the hair has been rubbed off.

To get rid of lice, spray beef cattle with rotenone, pyrethrum, DDT, methoxychlor, toxaphene, lindane, benzene hexachlorida, or chloradane. Of, if the weather is cold, use a dust.

Sprays or dusts or rotenone, pyrethrum, or lindane are the only ones recommended for use on dairy cattle. If you're treating for tail lice, be sure to dip the "brush" of the cow's tail in the same mixture you're using for spray.

Remember, many of these insecticides are poisonous; Be sure to follow the directions on the container when mixing any chemicals. Keep the insecticides out of feed containers and watering troughs.

Even Better Seed

. . . because four leading seed specialists are now working together!

Successful vegetable growers have long recognized that superior yields come from vegetable seeds grown by companies who specialize. Now, even *better* seed for richer harvests is the goal of the individual breeding teams of SEED RESEARCH SPECIALISTS, the progressive new research organization with the bright new SRS label. To this goal, four of the world's leading seed specialists bring nearly two and a half centuries of intensive breeding on specific types of vegetable seeds.

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SALES OFFICES: Modesto, California, U.S.A.

How smart are you

(Answers to Questions on Page 2)

1. *"Glory to the new-born King."*
2. *It was composed because an organ broke down and a simple tune had to be invented for guitar accompaniment.*
3. *An inevitable accident.*
4. *Since the time of Nero, or possibly even earlier.*
5. *The shadows of the mountains and valleys on the moon's surface.*
6. *Colombia.*
7. *Seventy years.*
8. *A goose.*
9. *Yes.*
10. *A position in the spotlight; publicity.*

* * *

Pastures for Swine Cut Concentrates

FARMERS who want to decrease the amount of concentrates needed to grow and finish swine might well think in terms of more pasture.

So believe three animal husbandry staff members at the University of Tennessee. In special tests, they found:

Pigs on a limited feed of concentrates and protein supplement—80 and 60% of full feed—made somewhat slower gains. Nevertheless these pigs required significantly less concentrates per 100 pounds of gain—including protein supplement—than pigs on full feed either in drylot or on pasture.

Limited-fed pigs on pasture produced leaner carcasses with less backfat, less fat trim, and a higher percentage of primal cuts.

NEW FROM HALE

NEW "TRACTOR-MATE"—A PTO Irrigation pump. The 3PTF is a trailer-mounted power take-off pump (shown above) and is ideal for irrigating medium acreage—or as a booster for your present system. At 550 RPM it will pump 350 GPM at 80 PSI.

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Questionnaires Reveal

Supplemental Irrigation Ups Vegetable, Forage Yields

A GOOD PORTABLE IRRIGATION SYSTEM enables farmers to have moisture when it is needed. The above type of sprinkler system is becoming increasingly popular for vegetable farms. These low sprinkler units are also used in pastures.

By THOMAS J. HUGHES

IRRIGATION is no longer a luxury. Rather, it is a basic tool in the growing of Florida's vegetable crops and pastures.

Evidence backing up these statements was received in a recent FLORIDA GROWER *and* RANCHER survey conducted throughout central and south Florida. The poll of farmers, county agents and others associated with farming revealed that:

(1) Supplemental irrigation has increased vegetable and forage yields from 25% in some counties to over 100% in other areas.

(2) Adequate soil moisture (which can be assured only through irrigation) is a prominent factor in harvesting maximum crops and making more money from potatoes.

(3) Cattlemen and dairymen, with the aid of irrigation, are upping their pounds of beef and gallons of milk per acre to figures heretofore unknown.

Vegetable production is frequently referred to as "Florida's most risky occupation." Many factors are vital to the successful vegetable operation.

Some of these factors are within the grower's control; others, are beyond his mastery. One of these is the necessity of adequate soil moisture *at the proper time*.

Because they are shallow-rooted crops, most vegetables are unable to survive—by themselves—during periods of critical droughts. Citrus trees and some of the deep-rooted pasture grasses are much more able to withstand periods of little rainfall.

However even citrus with its deep roots will fail to produce a profitable crop during dry seasons without supplemental irrigation. And although the extremely deep-rooted pasture grasses may withstand a severe drought, their production will be practically nil under such conditions.

Use of irrigation has increased crop production in central and south Florida 81%, response to the FLORIDA GROWER *and* RANCHER survey indicated.

Pulling this percentage down, or keeping it from nearing 100%, was the fact that some questionnaires from central Florida counties—where comparatively few vegetables are grown—reported less favorable response to supplemental irrigation.

In the larger trucking areas—such as Palm Beach, Dade, Manatee, Sumter, Hillsborough and Collier counties—growers claimed yield increases ranging from the high 90's to over 100%.

(These were estimates by growers, county agents, etc. No actual data had been kept.)

Eighty-eight percent of the new land going into vegetables, had facilities for irrigation prior to planting, compiled data from the survey showed.

At present, according to survey findings, some 90% of the vegetable growers have and make use of irrigation equipment. Of the remaining 10% of the growers, 8.3% were unable to purchase the equipment while 1.7% thought the expenditure not worth the profit derived from it.

Both large and small growers depend heavily on the aid of irrigation in their farming operations, the survey responses revealed.

Russell Cheshire, a large Pompano Beach vegetable grower, stated that his entire operation is equipped for irrigation. And, he added, his irrigation system paid for itself within one or two seasons.

Cheshire has a 1,500 acre truck farm. He uses both the gun-type sprinkler and seepage irrigation.

F. B. Sanders of Plant City, operator of a small strawberry and vegetable farm, had one of the first overhead sprinkler systems to hit that area. While he can't remember exactly when he bought it, he estimates that it is between 15 and 20 years old.

Sanders plants his major crops in the irrigated plots only. The less important and more drought-resistant crops are grown on the land without irrigation.

"I would not farm without irrigation," Sanders declared. He added that the differences between yields from irrigated plots and those having to depend on rainfall are often very marked.

Relationship of adequate soil moisture to potato yields was revealed in a two-year experiment by Dr. D. L. Myhre of the Potato Investigations Laboratory.

(Actually, a seasonal rainfall of about 14 inches would be sufficient to grow a good potato crop—if the rainfall were evenly distributed. However irrigation is necessary during dry periods to supplement rainfall and maintain a near optimum soil water level.)

Set up in 1955, the water furrow irrigation experiment was continued into 1956. The potatoes were planted in three 16-row beds on a fine sand soil.

Different levels of soil moisture were obtained by running artesian water through every other furrow next to the 16-row beds. Artesian water was kept in the irrigation furrows with dykes to a level of about four inches from the top of the row during the growing season.

Each bed was divided into four 4-row plots representing four—very high, high, medium and low—levels of moisture. Dr. Myhre reported a 6,400 pound variation per acre between the highest and lowest yields in the 1956 tests.

High moisture plots produced the largest yields: 303 hundred pound sacks (30,300 pounds) in 1955; 316 sacks in 1956. The lowest yield, 286 sacks, was obtained in 1955 in the very high moisture plots; in 1956, the lowest yield, 252 sacks, was from the low moisture plots. (The sharp decline in 1956 in the medium and low moisture plots was caused by a severe dry spell in March and April.)

The test results, according to the above figures, indicated that a medium to high soil moisture content is necessary for highest yields—but a low or a very high moisture level should be avoided.

Ranchers and dairymen making use of irrigation, according to the FLORIDA GROWER *and* RANCHER survey findings, totaled 19%. These figures did not distinguish between beef cattle and dairy operators.

However it is believed that the dairy operators are largely responsible for the 19% figure. Harper Kendrick, Manatee County agent, reports that approximately 50 to 60% of the dairy pastures in his area have irrigation facilities.

Although 19% of the owners of established pasture land in central and south Florida have irrigation, 21% of the new pastures are being equipped for irrigation prior to establishment.

In level areas, seepage irrigation is by far the most popular form of irrigation. In rolling areas, the sprinkler systems are preferred.

LARGE VOLUME GUNS are preferred by dairy and beef cattlemen for pastures; this is particularly true in areas where seepage irrigation is not possible. Some of the larger water guns cover an area exceeding three acres from one position. This system may also be used in citrus operations.

Florida's Major Tomato Disease –Botrytis– Beaten by PHYGON®-XL

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Vegetable Cost Data Compiled

COMMERCIAL vegetable production in Florida can be a money making enterprise or it can bankrupt the operator.

And—judging by cost and returns figures on vegetable crops in Florida compiled for 12 years by Dr. Donald L. Brooke, Experiment Station economist—commercial vegetable production in Florida is frequently a losing proposition.

Production of certain vegetables is on the wane because of lack of profit, the records show. A case in point is eggplant, which has been unprofitable in three areas of the state in recent years.

Sweet corn production, particularly in the Everglades area, is another example:

In the season of 1947-48, 6,000 acres of a profitable crop of sweet corn was harvested in the Everglades area. Within three years, the acreage had increased to 28,000.

For the five-year period of 1953-57, Everglades growers showed a net loss of $20.58 per acre. The loss shown by the average grower for the 1956-57 season was $22.86 per acre.

But in the Pompano and Zellwood areas, sweet corn has returned a profit in recent years.

Considerable stability has been shown by such vegetables as Irish potatoes, squash, cucumbers, green peppers, pole beans, and tomatoes.

Between 1946 and 1953, the tomato acreage increased 88% while production was up 115.5%. This indicates tomatoes have been a relatively good crop.

Dr. Brooke believes the cost of production data he compiles are of considerable value to the Florida vegetable industry because:

They provide information and advice for persons who may be contemplating going into vegetable production in a given area of the state. They are frequently used before the Interstate Commerce Commission in freight rate hearings.

Moreover, individual growers use this data to compare their costs with the average of an area and to determine whether to switch to another crop.

On the average, the picture of commercial vegetable production in Florida is not as black as Dr. Brooke's figures sometimes indicate. He says the average grower in Florida will tell you that if he has two good seasons out of five, he can keep his head above water.

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How to Buy An Irrigation System

AN IRRIGATION system is like an insurance policy—it always gives protection against the limiting growth factor, insufficient moisture.

When farmers are protected against insufficient moisture at critical growth periods, they can plant for optimum production by using more plants per acre, more fertilizer and more labor-saving equipment. This will insure a bumper crop—even though the rainfall is sufficient and no irrigation is needed.

You will, in other words, be able to plant and produce more if you have control of the moisture.

No two irrigation systems are exactly the same; they will vary according to layout of the land, position of the well, etc. Each individual system must be worked out before it can be accurately determined if irrigation is profitable.

Selection of a design should be based upon its *ability to pay*, not upon its cost. The system should start paying dividends immediately.

To obtain the most economical system, an individual farmer, rancher or grower should base his choice on an annual cost-per-acre figure. This annual cost could range from approximately $10 to as high as $200.

Only after the annual per-acre cost has been determined will the purchaser be in a position to know—not guess—whether he can afford to irrigate.

Valuable practices to remember when purchasing an irrigation system include:

Have a responsible firm with a trained irrigation engineer design the system.

Insist that the design be based on an annual cost-per-acre basis.

Be sure the designer furnishes a performance sheet.

Obtain a written guarantee that the system will perform as the performance sheet states.

Do not always buy the lowest-priced system; *do* purchase the system having the lowest annual cost per acre.

Piecemeal buying is no good. Buy your entire irrigation system from one reputable source that is in business locally and carries a substantial inventory of parts in stock.

Refuse to purchase a system unless a sketch to scale, showing the layout of the system, is furnished.

Have the Extension Agricultural Engineer or Soil Conservation Engineer check the design system before buying, if possible.

"Annual cost per acre" for irrigating takes into consideration all fixed costs such as cost of the equipment, of well drilling, of land leveling (if needed), of surface ditches, and the cost of any other equipment that might be needed to give a working irrigation system.

The average life of each of the components must be known. So must be the rate of interest to be paid.

Only after all of these facts are compiled is it possible to figure the annual fixed cost of each component. Each component must be figured this way, with the individual fixed cost added, in order to obtain the *total* fixed annual cost.

Finally, to this fixed cost must be added variable costs that apply to the system. This total will give the annual cost for irrigating and can be divided by the number of acres to be irrigated to obtain the annual cost-per- acre.

The annual fixed cost can be reduced. But this does not necessarily mean that the annual cost-per-acre will be reduced; the opposite usually occurs.

Usually, the fixed cost is reduced by lowering the initial investment. This can be done in several ways, such as:

Reducing pipe size, eliminating labor-saving and safety features, increasing the number of sets per day, poor land leveling, or some other method of reducing the amount of equipment to be purchased.

Any of these reductions will decrease the initial investment—but they will also result in an increase in labor, of fuel consumption, or both. This usually causes an increase in the total annual cost.

Proper balance between labor, fuel and equipment must be sought in order to design the most economical system for an individual to own and operate.

The size of the lateral lines has much to do with the overall efficiency of a sprinkler system. The size is determined by the fact that it is not economical for the loss in pressure to be more than 20% of the operating pressure at the sprinkler head.

For example:

If the sprinkler is to operate at 50 PSI, then the allowable friction loss between the first and last sprinkler on a given lateral should not be over 10 PSI. If the friction loss is greater than this allowable 20%, the size of lateral lines must be increased, or at least enough larger size pipe used, to reduce the friction loss total to less than the allowable 20% or the 10 PSI in the example.

Ordinarily, having two sizes of pipe on short laterals of 660 feet or less presents a handicap in moving and keeping the size separate. For this reason, sprinkler lines normally must have over 660 feet in length before it is economical to have two different size pipes in the line.

Always remember: the smaller the loss, the more uniform the application of a sprinkler system. It is possible to pump a given amount of water through any size mainline if the pump has sufficient capacity and is powered by a sufficiently large power unit.

The smaller the pipe, the lower the initial cost. However a larger pumping plant and more fuel will be required to operate the equipment for the entire life of the system.

It is impossible to over-emphasize the importance of proper selection of the pumping plant.

Fluctuating water levels may make it desirable to select a pump that will maintain a rather constant flow under varying head conditions. If the operator plans to shut down a portion of the system (one lateral) while moves are being made, a pump would be needed which would maintain a more constant head under varying flow changes.

Also, it is most important that the pumping and power units be considered both separately and together.

(ACKNOWLEDGEMENT: Much of the material used in this article was taken from the University of Florida Agricultural Experiment Station Bulletin number 173. It was compiled by S. E. Dowling, assistant Agricultural Engineer.)

Sprinklers Help Fight Frost

IT'S HARD TO BELIEVE, but it's true—a coating of ice protects plants from frost!

Michigan and Indiana farmers, reports the *1958 Ford Almanac and Gardener's Guide*, are finding that their sprinkler-irrigation systems are almost as useful for frost protection as they are for watering.

The Almanac declares that strawberries, tomatoes, onions and other truck crops can be saved even at 20 degrees. It continues:

"Sprinklers are started when the mercury drops to 34 degrees. One-tenth to one-eighth inch of water per hour is enough.

"As the thermometer drops, plants are coated with ice. Many a grower has damned the experts at this point; but when it warms up, he finds the crop came through undamaged.

"Here's why: Water gives off heat as it freezes. Enough of this heat is absorbed by plants to keep them from freezing. As long as water is applied, the plant doesn't freeze."

One Indiana farmer, the report adds, figures he saved strawberries worth $400 per acre this way. Another grower fought off frost on his tomatoes for six successive nights in the same way.

This "frost protection" method has also been utilized in Florida. An article on citrus irrigation in the November 1958 issue of FLORIDA GROWER *and* RANCHER stated:

"Protectd by ice, a 250,000 citrus seedbed came through the coldest nights of last season in excellent condition, according to James M. Crump of Dundee.

"Crump kept water continuously sprinkling on his six-inch-tall seedlings during the low temperatures until the ice melted the following day. It formed an ice blanket two inches deep . . . but it saved the seedlings.

"A *constant* sprinkling of water on citrus seedlings—or most any specialty crop—will protect them, Crump declared. However, he added, a little water is more harmful than good."

Bel Air 4-Door Sedan with a roomier Body by Fisher.

NOTHING'S NEW LIKE CHEVY'S NEW!

Impala Sport Coupe—new right down to its tougher Tyrex cord tires.

From its saucy rear deck to the simple elegance of its grille, this car shows you it's new in a decidedly different way. It brings you more spacious interiors, vast new visibility areas, bigger, better cooled brakes for safer stops, a longer lasting finish, a new Hi-Thrift 6, new handling and riding ease. And you get all the solid virtues of economy and practicality you've come to expect in a Chevy.

One look at this '59 Chevrolet tells you here's a car with a whole new slant on driving. You see the transformation in its low-set headlights, the overhead curve of its windshield, the sheen of its Magic-Mirror finish—a new acrylic lacquer that does away with waxing and polishing for up to three years.

But to discover all that's fresh and fine you must relax in Chevy's wider seats (up to 4.2 inches more room in front, 3.3 inches in back), feel the loungelike comfort of its new interior (with upholstery now extending snug to the windows), experience the tranquillity of its ride (improved Full Coil or gentler-than-ever Level Air* suspension).

You'll also find such basic benefits as bigger, better cooled brakes, vim-packed V8's and a new Hi-Thrift 6 that actually gets up to 10 percent more miles a gallon.

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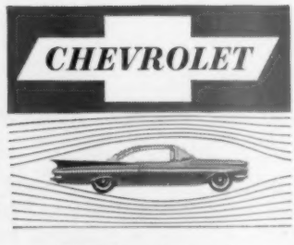

What America wants, America gets in a Chevy!

Outside Cows With Warm Insides

By DR. JAMES M. WING
Assistant Dairy Husbandman
Agricultural Experiment Stations

Their nature protects them against the wind and cold...

UNUSUAL WEATHER last winter caused enormous agricultural losses.

Existing equipment and methods did not prevent extensive freeze damage to fruit and vegetable crops. The growers deserved tremendous credit, however, for their efforts.

Fighting cold weather is an old story to most growers. They do it often—and usually they win.

Livestock losses last winter were also staggering. With each cold snap, inhibited growth and reduced milk output (in addition to pasture and other feed damage) were expected.

This, too, is an old story. The difference is that most of these losses are taken for granted *when usually they could be prevented!*

During the coldest weather last winter, cows at the Dairy Research Unit at Gainesville produced more milk than at any other time in the history of the herd.

Most of the dairymen and cattlemen who stopped by for a visit this year have been surprised by this fact. And, of course, they wanted to know why.

There are several reasons for this:

Cows are good cold-weather animals, in the first place, because a great deal of heat is formed by fermentation in the large stomach compartment, the rumen.

Wind, unless it's accompanied by rain, doesn't chill cattle as easily as it does some animals. This is because a cow's skin normally is very dry.

Some moisture does pass directly through the cow's skin. But not much of it goes through sweat glands.

Rapid evaporation of water by wind from skin of animals with many functional sweat glands causes drastic losses of body warmth. However the cow's skin, unless exposed to rain, actually *insulates* against heat loss during cold weather.

Moreover, the cow's body forms a great deal of warmth by metabolizing nutrients in the body cells. This applies especially to high-producing dairy cows because they use so much feed in relation to body surface.

Some of the highest milk production on record occurred in subzero weather. And some world's record cows were brought inside only long enough to be milked!

The cows referred to above were conditioned to the cold. It's the sudden change which inhibits growth and milk flow in Southern cows.

As the weather gradually becomes cold, thyroxine production is stepped up. This hormone stimulates body processes:

It makes the animal consume more feed and speeds up utilization of nutrients. It may increase milk production—and it's sure to help keep the body warm.

As the amount of food consumed by an animal increases, more heat-producing nutrients are available and a larger actual percentage of feed is changed to heat. Animals which live in cold climates grow thick hair coats; this also accounts for some of their resistance.

Cattle in warm climates also are protected naturally, to some extent, from cold. In addition to the fermentation and cellular metabolic heat already mentioned, there's a protective function of the nervous system which can be activated very quickly.

Blood vessels near the body surface contract. This keeps blood from bringing the body's warmth to the skin, where it would be dissipated by cold air.

Muscles under the skin contract, causing the hairs to become arranged in a way which gives it the best possible insulating properties.

In minimum sweating species, including the cow, respiration is slowed. This is most helpful because most body moisture is evaporated—and a great deal of heat removed—through respiration.

Listed thus far are things which help keep cattle warm, without any particularly harmful side effects.

However, there are other temporary measures used by nature to warm the body. And some of them do inhibit profitable biological functions.

For example, there's the increased tendency for all cold animals to exercise. It's possible that energy used in running and jumping and feed ignored during extra muscular exertion (not to mention possible bodily injuries) account for some of the lost production.

At times, increased exercise occurs involuntarily. Often cows can be found just standing and shivering during short cold snaps.

It's doubtful that such animals are earning much income for their owners.

What really causes most of the trouble, however, is another hormone. If the weather has been warm and nature hasn't increased the blood content of thyroxine, adrenalin is used to speed up the body processes when the cow's environment suddenly becomes cold.

Admittedly, this hormone is effective in keeping the body warm. But it does so at the expense of the milk-producing functions.

Of course, good housing could prevent most of these losses. However it's not usually practical for large, closed barns to be used this far south because severe cold weather is unusual.

The answer is to *warm the cows from the inside.* An increase in the amount of feed helps. And often a small extra allowance of concentrates just before, during and right after cold snaps will prevent reduced production.

One of the quickest ways to increase heat production inside a cow is to feed her more protein than she actually needs as such.

Protein not used to repair tissues and to make milk or new growth is changed to sugar. This happens very rapidly because the body has no good way to store protein.

Changing protein to sugar usually is inefficiently done because there's a great deal of heat formed in the process. And this heat usually is dissipated by body processes which require energy.

During short cold snaps, however, extra protein is just the thing to supply the heat needed to keep milk output normal.

How much extra protein to use varies with the weather and the particular cows. Pure oil meals should be used with caution—they can cause cows to go off feed.

Except in experiments where it is prohibited by the nature of research being conducted, the Experiment Station herd is fed the following mixture:

Ground snapped corn	600 parts
Citrus pulp	100 parts
Beet pulp	100 parts
Brewers grain	100 parts
Cottonseed meal (41%)	100 parts

This bulky mixture is fed in addition to the regular allowance of concentrates and leafy roughage *during cold snaps only.* It's a wasteful practice under better weather conditions.

Biologically, it's wasteful even during sudden, short periods of cold weather because so much of the feed nutrients fail to show up later as meat or milk. But when milk production drops, it's almost impossible to get it back to the original level; thus production for a whole lactation could be reduced as a result of a few cold days.

In such cases, even a process which is wasteful biologically can save months of later production. Thus it is conservative economically.

Replacement Tips

If you have some promising yearling heifers for replacements in the beef herd, keep the following in mind:

Be sure they are kept in thrifty, growing condition. Give them access to good pasture. And separate them from the breeding herd so they may attain good size before being bred.

Replacement heifers bred too early never attain full size, are poor milkers, and produce poorly nourished, undersized calves.

"RAINBOW improves my yields and quality"

"Three years ago I switched to Rainbow and since have had higher yields, better quality, and earlier maturity." That's the enthusiastic report from tomato-grower Wesley E. Tyler, Palmetto, Florida.

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LAST WINTER'S FREEZES inflicted no noticeable damage on the Valencia nucellar seedlings at left while adjacent plantings were practically killed to the ground. The budded trees on the right, although they were even then smaller than the nucellar seedlings, were large trees prior to the freezes.

Valencia Nucellar Seedlings Promise Virus-Free Budwood

VALENCIA nucellar seedlings — which appear to be virus-free*— may help solve one of Florida's major citrus problems.

At least, that's the hope of federal and state researchers. To substantiate their beliefs, they point to the Hughes Nucellar Valencia Grove near Apopka.

Believed to be the largest mature planting of its kind in the world, the grove consists of 1,307 trees which show great promise in regard to developing virus-free, stronger and healthier producing strains of Valencia oranges.

With the exception of Tristeza the trees are believed to be free of the virus diseases which plague most budded plantings. And since they are seedlings, the trees are capable of being a basic source of virus-free budwood.

Moreover, these trees appear to have the ability to withstand drought better than budded plantings. Also, they withstood last season's freezing weather with practically no ill effects while adjacent groves were severely damaged and some were frozen to the ground.

A nucellar seedling is identical to its parent plant. It is not produced by cross pollination, but is referred to as being "asexual."

In other words, a single seed of certain varieties of citrus may produce more than one seedling. One seedling may be produced by cross pollination; the others, by a division of the cells of the nucellus.

No male cells contribute to their formation. Nucellar seedling therefore not only inherit from the seed parent alone, they are actually identical to it in respect to genetic constitution except for a possible difference due to bud variation.

Experts consider it possible that, in some varieties, nucellar embryos may be developed without pollination.

Some varieties of citrus have the ability to produce a higher percentage of nucellar than gametic (sexual) seedlings. Howard B. Frost reported in 1926 that from 106 Valencia seeds planted, he got a total of 143 seedlings.

ONE OR MORE seedlings may be produced by a Valencia orange seed. For example, these two upright shoots would have developed into two separate seedlings.

Of this total, 22 were gametic and 121 were nucellar seedlings. In other words, 85% of the seedlings were identical to their parent plant.

Rough lemons have been known to produce 354 seedlings—14 gametic and 340 nucellar—seedlings from only 208 seeds planted. The percentage of nucellar seedlings may vary from none in some varieties to 100% in others.

Seeds were planted in the Orange County nucellar grove in 1938. Mrs. Lena Hughes and her late husband, who worked at the USDA in Orlando, selected the seed themselves.

Under the Hughes' supervision, the seedlings were transplanted two years later to the present Apopka location. Care was taken at that time to weed out the gametic from the nucellar plants.

(When they are two years old, gametic seedlings can be identified by their non-uniform appearance. Two-year-old nucellar seedlings are uniform with symetrical branches and leaves.

(It takes several years to prove that seedlings are true nucellar seedlings. At that time, the bloom and fruit are heaviest at the top of the trees; as the trees mature even more, the lower limbs begin to set fruit uniformly.)

By June of 1947, the young grove and fruit crop had developed to the extent that it could be truly identified as a nucellar Valencia. By 1950, the one-time elongated trees had acquired the appearance of normal budded Valencia trees.

Consisting of only a few hundred boxes of fruit, the first commercial picking was made in 1948. In the 1955-56 season, the production was near 400 boxes of fruit per acre.

The 1958-59 season shows promise of considerably exceeding the 1955-56 figure of 400 boxes per acre. And the future is even brighter:

People familiar with nucellar plantings seem to think that the Hughes grove is far from being in full production—and that it will continue to increase for several years before leveling off.

Mrs. Hughes is cooperating with the USDA in Orlando and the Florida Budwood Certification Division of the State Plant Board in an effort to secure more information on nucellar trees for the state's citrus industry.

In fact, Gerald G. Norman, head of the budwood certification work, has selected enough budwood from these Valencia seedlings to plant a 10 acre grove. This budwood has been tested for Tristeza and Psorosis and appears to be free of other virus diseases.

Fifty percent of the budwood was put on rough lemon, which is most growers' current choice of rootstock for Valencias. Ten percent of the buds were put on sweet seedlings as a check for Psorosis. Ten percent were budded onto Orlando Tangelos as a check for Xylopsorosis. The remaining 30% was divided equally on Trifoliata and Morton Citrange where Exocortis is most likely to show up. It is believed that this development planting may give further proof of the value of these selections on commercial rootstocks.

Plant Board officials point out that while the nucellar clones have great vigor and their production potential looks to be most promising, none of the state's best old line bud strains will be abandoned until the nucellars have proven themselves superior in yield, quality and durability beyond any doubt.

In selecting this budwood for testing in the state-owned nursery,

(Continued on Page 29)

GROVE CARETAKER William H. Mathews checks leaves for insects as Mrs. Lena B. Hughes, owner of the world's largest Valencia nucellar planting, looks on.

*All seedling trees are presumed to be free of viruses except that even seedlings may be infected with Tristeza virus by aphids.

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Amount of Soil in Banks Around Trees Is Important

Following the December and January freezes of last season, it appeared that some young citrus trees had been killed below the top of the soil banks.

Quite naturally, therefore, many growers began to wonder: Just how much freeze protection is afforded small citrus trees by soil banks?

Rollo H. Dean, meteorologist with the Federal-State Frost Warning Service at Lakeland, also asked the same question. To learn the answer, he built a soil bank at the Lakeland station and took readings during February and March.

Measuring 24 inches in width at the bottom and six inches on top, the bank was 12 inches high. To simulate tree conditions, a dead limb ¾ inch in diameter was inserted vertically in the center of the bank.

Thermometers were inserted horizontally at depths of one and six inches from the top, with the bulbs against the limb. The bank was built near the south-east corner of a fruit-frost thermometer shelter which contained a thermometer four and one-half feet above ground.

A sheltered minimum thermometer was placed adjacent to the soil bank, with the bulb 12 inches above the ground. The accompanying table shows some temperatures recorded by the thermometers on the coldest nights.

Date	Minimum Air Temperatures 54″	12″	Minimum Soil Bank Temperatures 1″	6″	Difference of Soil Temps. from 12″ Air Temperatures 1″	6″
2-19-58	24.1	21.0	27.5	35.5	+6.5	+14.5
2-20-58	26.0	21.0	26.5	36.5	+5.5	+15.5
2-21-58	26.0	21.0	27.0	37.0	+6.0	+16.0
2-22-58	34.0	31.0	33.0	41.5	+2.0	+10.5
Averages	27.7	23.5	28.5	37.6	+5.0	+14.1

It is interesting—and important—to note that the air temperature averaged 4.2 degrees colder at a height of 12 inches above the ground (the top of the bank) than at 54 inches above ground.

Soil temperatures one inch from the top of the bank averaged 5.0 degrees warmer than the air 12 inches above ground. At a depth of six inches in the bank (which would be near the bud), temperatures averaged 14.1 degrees warmer than the air at a height of 12 inches.

All this, Dean maintains, indicates that the quantity of soil around the tree determines the amount of protection provided.

This conclusion is borne out by tests made by Dr. H. W. Ford of the Lake Alfred Citrus Experiment Station. In his tests, the soil was piled to a height of 18 inches and came to a point at the top, forming a cone.

In this cone-shaped mound, the thermometers at one-inch and six-inch depths (and hence the tree trunk) were closer to the outside of the bank than were those built by Dean, and less protection was provided. At a depth of 12 inches however (which would be similar to the six-inch depth in the wider mound), the protection given was very nearly the same.

These data are insufficient to be entirely conclusive. However, Dean adds:

"It does appear certain that the amount of soil around the tree trunk is very important.

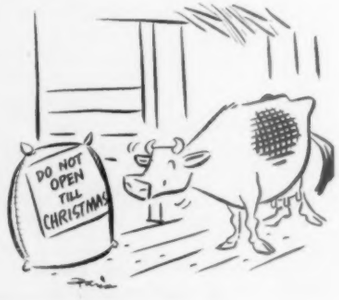
"Consequently it is recommended that for small trees, soil banks be built at least 12 to 18 inches high, not less than 24 inches wide at the ground, and not tapered too sharply."

Groves in the colder areas of the state, reminds the meteorologist, should have been banked by November 15.

* * *

Rowan Honored

Edsel W. Rowan of Ocala, Marion County Agent, was one of 10 county agents and vocational agriculture instructors honored by the American Hereford Association during the recent American Royal Livestock Show in Kansas City. The men were cited for their outstanding youth work and contributions to the beef cattle industry.



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Farmall 340, a new addition to the IH tractor line, gives you 3-plow power and 4-row cultivating capacity. This all-new tractor gives you low-profile convenience without sacrificing crop clearance. The Farmall 340 develops 36.1 hp at the belt and 32.6 hp at the drawbar. New International 340 Utility has similar power. Get Torque Amplifier and independent pto on both tractors.

International 240 Utility gives you 2-3-plow power with smaller tractor nimbleness and economy. Rugged 4-cylinder engine develops 32.2 hp at the belt and 28.9 hp at the drawbar. New Farmall 240 has similar power . . . 4-row cultivating capacity! Both tractors give you Hydra-Touch hydraulics and a choice of 2 or 3-point Traction-Control Fast-Hitch with new Tel-A-Depth control.

Farmall 140, a 1-2-plow tractor, develops 24.2 hp at the belt and 22.1 hp at the drawbar. Exclusive IH Culti-Vision and two-valve Touch-Control make this Farmall tops for close-cultivation of high-value crops. Increased power and new gear speeds also increase its efficiency on heavy work and light utility jobs. The Farmall 140 comes in both regular and Hi-Clearance models.

Farmall 560, with smooth 6-cylinder engine, gives you 5-plow, 6-row tractor power. This new IH Multi-Range Six provides a wide power-speed selection that enables you to travel faster, pull multiple hitches, and work more rows. The LP gas model, pictured, develops 62.5 belt and 58.0 drawbar horsepower. You also have a choice of gasoline or Diesel engines.

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State Still Tops in Citrus

LAST SEASON'S cold weather failed to lower Florida's status as a leading citrus producer.

This state still leads the world in grapefruit production. And it is responsible for about a third of the world's supply of oranges, tangerines and grapefruit, according to a tabulation by Zach Savage, Experiment Station economist.

Florida produced 69% of the world supply of grapefruit last season and 76% the previous year. Other states in the United States brought the total U. S. production of grapefruit up to 90% of the world supply last season.

Even though low temperatures reduced Florida's 1957-58 production of citrus, this state accounted for 31% of the world supply of oranges, grapefruit and tangerines last year. In several prior seasons, Florida produced 34% of the world supply of these fruits.

The Mediterranean area– including Italy, Spain, Israel and North Africa–ranks second in world citrus production. Other areas in which citrus fruit is produced commercially are Australia, Formosa, Japan, South Africa and South America.

Florida's production of oranges and grapefruit has increased tremendously since the 1935-40 period when it accounted for 38% of the U. S. crop. In the 1949-54 period, the figure was 64%; last season, it was up to 74%.

Cows Eat Watered Grain Faster

WHEN cows don't eat their ground feed fast enough, the process can be speeded up considerably by adding water to the concentrate.

This is especially important for cows fed ground concentrate while they are in the stall of a milking parlor system, points out University of Minnesota dairy scientist W. E. Petersen. He explains:

If cows don't clean up their feed by the time they are milked, either they hold up the milking operation or they don't get enough to eat. Neither situation is desirable.

However, the dairy scientist declares, both situations can be avoided by adding water to the concentrate. This simple practice can cut grain-eating time almost in half, University of Minnesota studies show.

Dr. Petersen recommends adding one and one-half pounds of water for each pound of feed. The water should be added after the feed is put in the receptacle.

But it is not necessary to mix the water and the grain–the cows seem to enjoy doing this themselves, the scientist says.

* * *

According to USDA estimates, 15% of all fertilizer mixtures today are granulated.

Season's Greetings

Why Gamble with your crops— and profits

Magnesium deficiency in citrus, and vegetable crops as well, can be most costly –both in quality and quantity of yield. For citrus, why not follow the recommendations of the Florida Citrus Experiment Station at Lake Alfred which stress the need for large applications of magnesium for citrus in soluble form and state that it is usually applied as a sulphate.

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Citrus Insect Control for December 1958

By
R. B. JOHNSON, W. A. SIMANTON, and W. L. THOMPSON*
Florida Citrus Experiment Station, Lake Alfred

SCALE INFESTATIONS were well above average in November. Red scale populations increased sharply during the month to a high level. Although a general decline will occur during December, red scale infestations are expected to remain above average through the winter. Purple scale maintained moderately high infestations throughout the state during November. A slight decrease in population is indicated for December. More purple scale than usual have been noted this fall on or near the fruit stem. This has been a factor in fruit droppage.

Purple mite is somewhat below normal over the state at this time. While the general infestation is not expected to depart from average levels during December, damaging populations will show up in many groves. Texas citrus mite infestations have built up steadily for the past two months. Although present in a relatively small number of groves, this mite can occur in large numbers and may be a problem during December in some areas.

Rust mites increased sharply from a low level in October. November populations were high and are expected to go higher in December.

Spray program for scale control: Groves that have not had a fall scalicide should be checked for purple scale, chaff scale, and Florida red scale, because infestations of any of these may be very injurious and costly. Even a light infestation of purple scale around the stem-end of fruit can cause a severe fruit drop. Both purple and chaff scale cause grade-lowering green spots that cannot be removed from fruit in the coloring room, and both purple and red scales can cause severe defoliation with subsequent fruit drop and dead wood.

Although oil sprays are just as effective against scale insects during the winter as at any other time, they are not recommended for winter use. Oil is a definite shock to citrus trees. It makes them more susceptable to cold injury and may cause a high percentage of late-bloom fruit the following year. Oil also interferes with degreening. Parathion and malathion do not have these adverse effects and are therefore recommended in preference to oil. Parathion 25% (or its equivalent in other formulations) at 1.0 pound per 100 gallons or malathion 25% at 4 to 5 pounds should be used for moderate to heavy infestations of scale. Lower dosages of .6 pound of parathion 25% or 3.0 pounds of malathion 25% will be satisfactory for light infestations.

Regardless of the scalicide used, thorough coverage is essential for best results. This seems to be particularly true during the winter. Poorer control of scale insects is usually obtained during winter months than in the summer. This may be due partly to differences in weather, but is also due largely to the difficulty of obtaining thorough coverage with the heavy weight of fruit on the trees. More attention should be paid to coverage during the winter than at any other time of the year.

Parathion and malathion are compatible with most of the materials recommended for mite control. There are a few exceptions. Although both may be used with DN Dry Mix No. 1, severe leaf drop has occurred with such mixtures. Furthermore, where there is a breakdown of the peel of oranges, the mixture of DN and parathion increases the injury. Hamlins and Pineapples are most susceptable to this type of injury. Although parathion may be used with lime-sulfur, the possibility of using malathion with lime-sulfur has not been investigated.

*Written November 24, 1958. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. M. Sutton, Lake Alfred.

SCALE AND MITE ACTIVITY BY DISTRICTS*

District	Purple Scale	Red Scale	Purple Mite	Rust Mite on leaves	Rust Mite on fruit
West Coast	3.09	3.21	1.92	2.92	3.33
Indian River	2.65	2.70	.94	1.43	1.16
Upper East Coast	5.26	3.71	1.43	1.72	1.17
Gainesville	3.50	.33	.67	1.67	1.17
Orlando	3.04	2.34	.62	.50	.76
Brooksville	2.98	.29	1.07	1.79	1.85
Ridge	4.11	4.13	1.90	2.00	2.09
Bartow	4.53	4.40	1.10	2.69	2.60
State Average	3.55	3.25	1.27	1.74	1.81
Last Year	3.92	2.95	1.19	2.46	2.27

*Third week in November. Activity is computed from populations, amount of hatching of scales, and number of groves with increasing or decreasing infestations. Activity is considered high if above 4.0 for purple scale, 3.0 for red scale, and 1.5 for mites.

Purple mite and Texas citrus mite control: During the spring and summer months citrus trees are usually able to withstand large numbers of purple mite and Texas citrus mite as long as soil moisture is adequate. This is definitely not true during the winter. Winter is normally dry with periods of windy weather, conditions that are favorable for mesophyll collapse and firing. These types of injury are always more severe where purple mite or Texas citrus mite are present, even in small numbers. For this reason, groves should be checked regularly throughout the winter months so that miticides may be applied before 20 percent of the leaves are infested. This is the best way to prevent severe leaf drop and dead twigs. It is also the best way to obtain a long period of mite control.

During cool weather purple mite has a tendency to congregate on the green twigs and the lower surface at the base of the leaves. Eggs are usually laid in large numbers in these locations. These areas, as well as the tops of trees, should be inspected when checking for this mite. As much attention should be paid to mite eggs as to the mites themselves because even though mites are not numerous, the presence of mite eggs is a good indication of a forthcoming mite outbreak.

Materials recommended for control of both purple mite and Texas citrus mite include Tedion, Trithion, Kelthane, Systox, and DN Dry Mix No. 1.

No residue tolerance has as yet been established for Tedion on citrus fruit. This material should not be used on bearing citrus. It can, however, be safely applied on trees without fruit and a limited amount has been available for grower trial on bearing trees under an experimental sales permit.

Tedion is very slow to kill mites, but gives a long period of control. For best results, apply a thorough application of Tedion at ½ pound per 100 gallons before high populations of mites develop. If Tedion is used where mites are numerous, a quick clean-up can be obtained by the addition of such materials as parathion, malathion, TEPP, or Chlorobenzilate. Chlorobenzilate will also control rust mite. Tedion is believed to be compatible with all of the materials used on citrus.

Trithion at the dosage of 1 pound of wettable powder or ½ pint of liquid per 100 gallons not only kills active mites quickly, but also gives a long period of control. Trithion is compatible with the materials recommended for use on citrus and may be used on oll varieties up to 14 days before harvest. Trithion is also about as effective against rust mite as wettable sulfur and may be used for combined rust mite and spider mite control during the winter months.

Kelthane gives a quick kill of both purple mite and Texas citrus mite, but has not given as long a period of control of purple mite as either Tedion or Trithion. Kelthane is effective at dosages of 1 to 1½ pints per 100 gallons. It should not be used in alkaline solutions, but is believed to be compatible with other materials recommended for use on citrus. Kelthane may be used on all varieties up to 7 days before harvest.

Systox at the dosage of ½ to 1 pint per 100 gallons gives a quick kill of mites and as long a period of control as Kelthane. Systox should not be used in alkaline sprays, but is compatible with other materials recommended for use on citrus. Systox may be used on oranges, lemons, and limes up to 21 days before harvest.

DN Dry Mix No. 1 at ⅔ pound per 100 gallons gives a long period of control only when thoroughly applied to low infestations where mite eggs are not abundant. For very light infestations a 1½% DN-sulfur dust is fairly effective. No injury to fruit has been observed following a DN-sulfur dust, but mixtures of DN and parathion sometimes cause a leaf drop and may increase any breakdown of the peel of Hamlin and Pineapple oranges.

Rust Mite Control: Rust mite should be controlled throughout the winter for two reasons. First, rust mite can russet fruit whenever mites become numerous; and second, it can be as much of a factor in causing leaf drop as purple mite and Texas citrus mite.

Zineb at ½ pound per 100 gallons is the most effective material for rust mite control. It has no fumigative properties, however, and must be thoroughly applied for best results. Zineb can be mixed with all materials used for mite and scale control. However, DN is not as effective when used with zineb as with Chlorobenzilate or sulfur.

Chlorobenzilate at ½ pound per 100 gallons is not as effective as zineb, but when thoroughly applied, is slightly superior to sulfur.

Wettable sulfur at 10 pounds per 100 gallons, or 1 gallon of lime-sulfur with 5 pounds of wettable sulfur are satisfactory. Lime-sulfur is somewhat caustic, and should not be used on tangerines or early oranges.

Trithion at 1 pound or ½ pint is about as effective against rust mite as wettable sulfur if thoroughly applied. Trithion should be satisfactory for combined rust mite, purple mite, and Texas citrus mite control.

Details of spray schedules and the various materials used will be found in the "Better Fruit Program" and this should be consulted to determine which materials may or may not be combined. For further information, consult the Citrus Experiment Station at Lake Alfred or Fort Pierce.

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P. O. Box 1429, Phone 2-2931, PLANT CITY, FLA.

Turning Under May Deter

THE ROOT-ROT complex, affecting practically all vegetable crops in south Florida, has become progressively worse during the past several years. This has been especially true on the sandy soils of the lower east coast.

Without question, weather conditions have influenced this con-

DR. W. D. MOORE*

dition to a large extent. However, cropping systems have been equally important.

During recent years, many farmers have resorted to growing summer cover crops to provide humus and at least some of the plant food. But— in order to get maximum yields—the crops have been allowed to grow until late August or the first of September before plowing under.

Because of this delay, the cover has had to be incorporated into the soil in a green state. And this practice has encouraged the multiplication and rapid growth of the principal soil-borne parasitic fungi which are associated with the root-rot disease.

The inadvisability of this practice was pointed out by Tisdale and Moore (Circular S-75) in 1954.

Subsequent to the publication of this circular, a series of experiments was started at the Plantation Field Laboratory, Fort Lauderdale. The purpose of the experiments was to determine the effects of different materials, when added to sandy soils, upon the incidence of both Rhizoctonia and Pythium species (the most important genera of organisms associated with the root-rot complex).

Preliminary tests were made in pot experiments. Sterile sandy soils were inoculated with pure cultures of the respective fungi, followed by additions of different types of air-dry organic matter.

Additions of most dry organic materials, two seasons' results indicated, caused significantly less infections on snap beans by both Rhizoctonia and Pythium than where no additions were made.

Of the materials tested, dry hay and finely divided bagasse proved best from a workable standpoint. Otherwise, they did not prove significantly better than the other materials.

Replicated plots of equal size were used in a field plot experi-

*(Formerly plant pathologist, USDA and Plantation Field Laboratory, Fort Lauderdale, Dr. Moore retired July 1, 1958 after 27 years with the USDA.)

Dry Roughages Root Rot

ment started in 1956. The plots were treated as follows:

Bagasse added at rates of 5,000 pounds and 2,500 pounds per acre; dry hay, similar rates; fallow; and normal cover which was plowed under in the green state. All dry materials were incorporated into the soil four weeks or more before planting.

Snap beans were used as the test crop. Equal amounts of seed were planted to each row.

Readings were made on total germination, post-emergence, damping-off, stem-lesion infections, and—where possible—bean yields.

Original plans were to start a new series each year until three had been completed, then continue all for three or more years to cover as many weather factors as possible. Unfortunately, this could not be done.

However, the accumulated data through the current year indicate results of considerable importance. The combined data on the first series—which had received annual organic additions for three years—indicated:

Post-emergence damping-off was significantly higher on non-treated plots. Stem-lesion infections showed similar readings. Final yields were larger on the treated plots (one season's results).

There were slight, but not significant, differences in favor of the 5,000 pound application as compared to the one of 2,500 pounds. There was also a slight difference in favor of bagasse over dry hay.

Fallow plots were consistently worse than the treated plots in all respects.

In the light of the results shown in Circular S-75, where green organic matter was added to the soil shortly before planting beans, present results seem to be particularly important. These results suggest that:

(1) Plowing under green cover crops immediately before planting is not desirable for the lower east coast.

(2) Covers are advantageous if used in a dry state.

(3) Where used in a dry state, the incidence of both Rhizoctonia and Pythium can be reduced and yields are likely to be increased materially.

* * *

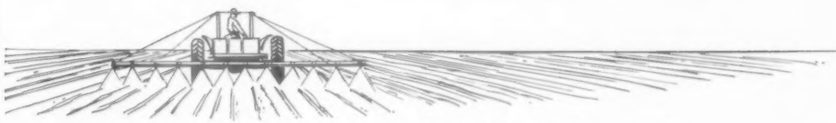
PEANUT ALLOTMENT

Florida's peanut crop allotment for 1959 will be 55,079 acres. This will be an increase of 164 acres over the 1958 allotment.

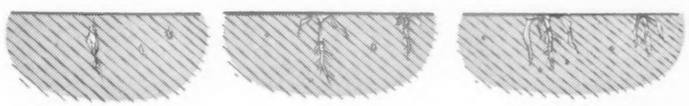
CUT HAND-WEEDING COSTS!

New Vegadex® weed-killing "blanket" can save you $20 to $90 per acre in vegetable crops!

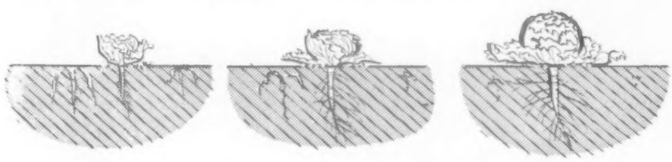
HOW VEGADEX KILLS WEEDS FOR YOU



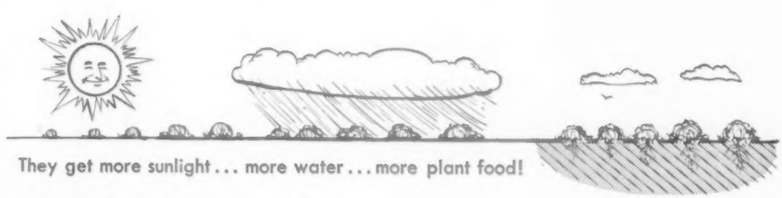
Spray on Vegadex when you plant. Invisible chemical "blanket" covers soil.



Grassy weeds sprout... touch Vegadex "blanket"... wither and die.



Your vegetables grow through unharmed with few weeds to fight.



They get more sunlight... more water... more plant food!

RESULT: You get bigger harvests... save $20 to $90 per acre on hand-weeding labor costs. (*A fact proved by commercial growers in their own fields.*)

This commercial grower band-sprayed Vegadex at planting. See how weeds smother untreated celery, at right, while treated rows, at left, grow clean, vigorous. Remember, you can spray Vegadex every time you plant—it won't build up in your soil.

Florida Growers...

VEGADEX CONTROLS—purslane, pigweed, henbit (blueweed), annual bluegrass, bull grass (goose grass), crab grass, foxtails, barnyard grass, chickweed, lambsquarter.

VEGADEX IS SAFE FOR—celery, lettuce, broccoli, Brussels sprouts, cabbage, cauliflower, sweet corn, collards, kale, mustard greens, spinach, turnip greens, hanover salad, snap beans, lima beans, soybeans, field corn, garden beets.

Before you plant your next crop, see the Monsanto Farm Chemicals Dealer who displays this sign. He'll show you how spray-weeding with Vegadex eliminates nearly *all* costly hand weeding in your vegetable crops.

GROW MORE PROFITABLY
Monsanto
FARM CHEMICALS

Vegadex*

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FLORIDA AGRICULTURAL SUPPLY COMPANY

JACKSONVILLE, FLORIDA

YARD & GARDEN

By MARGUERITE SCHWAEN

MAKING FRAGRANT and colorful Christmas garlands from everyday materials at hand is an absorbing hobby.

Plant material, indigenous to the place where the first Christmas was celebrated, abounds in our Florida gardens. This makes it easy to select a theme, as well as a color scheme, that will tell an old story well and add gay decorations to our home.

Gold is symbolized by the glitter and the spray we have in such abundance during the holiday season. The frankincense is the greenery, which may be tipped with silver paint or banked heavily with artificial snow. The myrrh is all the fragrance and color of the Yuletide.

Unlimited decorative possibilities are offered by tropical plant material —and Florida palms seem to be used in new ways every year. The fronds of the palms make artistic door sprays when gilded or silvered and decorated with brilliant balls an colorful ribbons. The palm seeds, pods, sheaths and spathes are interesting in form and texture when combined in artistic arrangements.

One basic form for a door wreath is made from the palm boots of the Areca palm. When these sheaths first fall from the palm trunks, they are pliable and can be curled to desired shapes. They may be forced into crotches of trees, fences and the lattice work of trellises to hold them in desired shape until dry and hard.

Dry spathes, however, should be soaked in water until pliable. Then they may be curled; clothes pins will hold them in place until they are dry.

When assembling a wreath, I cut the spathes to desired lengths and taper them so they might be stapled to a circle of plywood. The plywood forms a sturdy base for the addition of various-sized pine cones and of nuts—such as peanuts, walnuts, pecans, acorns and almonds—which are wired in bunches and then wired to the wreath.

Next, I spray the wreath with gold paint and dust them with gold glitter. Additional ornaments of Christmas balls, bells, sparkles, and beads can be added for color.

This type of wreath may be used year after year and redecorated, like an old hat, as the mood changes or the decor demands. Handy aerosol spray cans turn the most prosaic material into golden gossamer and beaten silver. Very little other ornamentation is necessary when time and thought are given to the texture and pattern of the plant material used.

Christmas flower show: The Eighth District Flower Show of the Florida Federation of Garden Clubs is being held December 6 and 7 at the Pinellas County Fairgrounds, Largo.

Scheduled classes call for arrangements done with painted plant material—alone or in combination with Christmas ornaments and the traditional red and green colors—to interpret "Here and Everywhere—It Will Soon Be Christmas." Some classes will be fanciful and whimsical; others will show the use of decorations for holiday tables.

Living in Florida

By BARBARA CLENDENIN

THE FRUIT CAKES are fragrant in their foil wrappings and the bottom shelf of the storage closet is bright with early presents.

The littlest member of the family changes her mind hourly about her Christmas list—on every point but one. She's dead sure she wants Santa to bring her a pony-tail.

Our teen-ager isn't very realistic, either. He wants a motor scooter which he can't have, some golf clubs which he just might achieve, and a dinner jacket which is at least two years away.

The head of the house is his usual exasperating self. The only things he wants are more time to read, a lawn that stays emerald forever, and perhaps a few months in the Orient. Now, how can you shop for a man like that?

So I'm going to make a wreath for the door like the beauty Marguerite Schwaen pictures in *Yard and Garden* . . . and hundreds of cookies and candies . . . and a cake that ends up as a Christmas scene . . . and a gingerbread sled. Somewhere along the line between mixing bowl and oven, a gift for that man will surely come to mind.

Here's how we'll do the sled, with the littlest one standing on a chair to help. This gingerbread cookie dough holds its shape while baking:

⅔ cup sugar
½ cup shortening
⅔ cup molasses
1 egg
1 teaspoon ginger
1 teaspoon cinnamon
½ teaspoon cloves
3¼ cups sifted enriched flour
1 teaspoon baking soda

You'll get 8 dozen cookies from this dough, which can be baked in stars, rounds, trees or Santa Clauses. Decorate them with icing made of 1 cup sifted confectioners' sugar, ¼ teaspoon salt and ½ teaspoon vanilla with enough milk or water to make a smooth paste. Tint with a drop or two of food coloring.

Blend sugar, shortening, molasses and egg. Stir in spices mixed with flour and soda. Knead dough until it is smooth; roll it out ⅛ inch thick on a lightly floured board.

Trace a cookie sled on cardboard. Cut 2 sides of the sled from gingerbread dough and transfer them, with large spatulas, to a greased baking

(Continued on Next Page)

A Christmas Present for India

By LORA A. KISER

THE REVEREND D. P. TITUS of Kanpur, India, was one of a group of ministers invited to the United States by the Board of Missionaries of the Methodist Church. His tour here consisted of five months' study at Drew University and four months at Tampa's First Methodist Church. He was the only one of the group assigned to Florida.

Soon after arriving in Tampa, he expressed a desire to learn to can food. A wise man, he wanted to help feed his people physically as well as spiritually.

And, in this regard, his assignment to Tampa was particularly appropriate: Florida and northern India, though many miles apart, are in the same temperate zone. Their climates and vegetation are much the same.

India has droughts and floods which ruin the crops. But, unlike America, it does not have a supply of canned fruits and vegetables. Consequently the people eat fresh fruits and vegetables from day to day when they are available—and do without when they are not.

Because little is known about home canning in India, the minister wanted to learn so that he could teach his church people and others could learn from them. (He pastors the biggest Methodist church in a city of one million people.)

I invited Miss Bonnie McDonald, food conservation specialist from the state home demonstration office to assist me in teaching Dr. Titus. Since his schedule was so filled with church activities, he had to do most of the teaching in one day.

Equipment and the scientific aspects of canning were shown and explained to him. This included bacterial action, the need for cleanliness and sterilization, the selection of food at the proper stage, the kind of equipment used, and the methods of processing.

We explained that the boiling water bath method is used for processing acid fruits and tomatoes, and that the steam pressure cooker process must be used for all vegetables and meats.

The minister had never before donned an apron; in India, all kitchen work is done by the women. Nevertheless, in our Tampa home demonstration kitchen, he rolled up his sleeves, put on an apron, washed his hands and did everything—he scrubbed grapefruit, sectioned the fruit, washed and sterilized jars, and did the actual canning.

He canned grapefruit, beans and tomatoes by the water bath method; made grapefruit marmalades, and canned okra, okra and tomatoes, snap beans and fish in tomato sauce by the pressure cooker method.

Even though most of the work was done in one day, he came back for short sessions with Mrs. Bassett, assistant home demonstration agent, and me. These sessions included testing the jars he had canned for perfect seals and some extra experience with the pressure cooker.

Our minister-student had never seen a pressure cooker before. And, as far as he knew, they were not available in India. We began to plan how they could be obtained by his people. We thought of mail order catalogs, and showed him a copy of Sears' catalog.

Still, I worried as to whether he could order, get the model desired, and know how to use the cooker when it arrived. Also, there was the time lapse of getting back to India, accumulating the money, and then ordering a pressure cooker. Much of what he had learned could be forgotten by then.

Contacting officials of Sears Roebuck and Company in Tampa, I explained the situation and asked if they would donate a pressure cooker. This they did gladly. And thus it came about that the Reverend Titus received an early but prized Christmas gift of a pressure cooker and a book of instructions. Robert Ensslin (shown right in the accompanying photo), sales promotion manager of the Sears Roebuck store in Tampa, made the presentation.

Now the Reverend Titus has his cooker and has used it. He has his filled jars, a head full of knowledge about canning, an armful of bulletins on canning and preserving . . . and a Sears' catalog to take back to India as a Christmas present to his people.

Before landing in Kanpur, he will visit the Holy Land. He feels his preaching and teaching can be more effective after this experience.

Members of the home demonstration department cannot go as missionaries. But they sincerely hope that the bit of training they could give this man of God will help to feed his people physically while he feeds them spiritually.

Gingerbread Sled *(Continued from Preceding Page)*

sheet. It's easier to cut the curved front runners separately from the sides of the sled and stick them in place when assembling the cooked pieces.

You'll need a front and back for the sled. The back should be as high as the side back and from 3 to 4 inches wide. The front should be as high as the front of the sled and the same width as the back. Transfer these pieces to a greased baking sheet and bake all cut-outs at 350 degrees for 8 to 10 minutes.

Cool cut-outs on racks; when cool, decorate with colored decorators' icing. Assemble the sled by sticking the various parts together with a paste made by mixing confectioners' sugar with unbeaten egg white.

Fill with gaily decorated cookies—and don't be too upset if someone nibbles before Christmas.

GOOD TO EAT, EASY TO MAKE is this seasonal snowscene. Uncooked fondant makes the cabin and church; seven-minute icing is the snow, and chopped nuts "pave" the path. Gum drop candies, cut in desired shapes, do the rest.

Hidden beneath the snow is a chocolate cake. The mountains on the four corners can either be cupcakes cut to size or piled-up icing. For the pond, simply leave off the icing in a small area and instead sprinkle with a few grains of sugar.

BEST RECIPE of the MONTH

On the night before Christmas, kitchens are filled with tender turkeys, mince-meat pies, plum puddings and vast bowls of dressing; there's small space for supper preparations on that festive eve. So this month we're featuring well-loved recipes that warm the heart without adding to the holiday culinary confusion.

All the way from Oakland, California—and a homesick Florida girl, Mrs. Harry C. Denver—came this month's top recipe: luscious spareribs marinated and baked in a pineapple sauce.

Serve them with French bread, a frozen green vegetable, frozen sweet potatoes and head lettuce salad. Supper's served in a twinkling . . . and it's delectable!

Pineapple Spareribs

2 sides meaty spareribs, about 4 pounds
1 cup crushed pineapple
⅓ cup honey
1 cup soy sauce
1 teaspoon ginger
2 cloves garlic, minced
⅛ teaspoon pepper

Place ribs in shallow baking pan. Combine other ingredients, mix well; pour over ribs. Cover, chill in refrigerator at least 7 hours, turning 3 or 4 times.

Bake uncovered for 30 minutes at 350 degrees. Reduce heat to 300, cover the pan and bake another hour. Baste occasionally during cooking.

Serve with sauce. Serves 5 or 6.

Send us your most taste-teasing seafood recipe for our February issue—if it's irresistible, we'll mail you $5.

It can be shellfish, freshly caught fish or the handy kind that nestles conveniently in frozen food counters. Just be sure it's a charmer and mail it by December 28 to:

Best Recipes Contest
FLORIDA GROWER *and* RANCHER
P. O. Box 2350
Tampa, Fla.

Send your name, address and telephone number, too.

First prize is $5; second prize $2; honorable mention a three-year subscription for yourself or a friend.

Second Prize

Mrs. Louise Ester Pledger, Sarasota, is an excellent cook who bakes a savory Danish pie of ground meat, raisins and apples on Christmas Eve.

With this delicious meat pie, she serves crusty rolls, a vegetable, tossed salad, and a gelatin dessert.

Danish Meat Pie

1 pound ground lean pork
1 pound ground beef
3 eggs
1 teaspoon salt
¼ teaspoon pepper
2 tablespoons grated onion
1 cup tomato juice
1 cup dry bread crumbs

Stuffing

3 cups soft bread cubes (½ inch)
1 tablespoon chopped onion
½ cup milk
½ teaspoon salt
⅛ teaspoon marjoram
⅛ teaspoon pepper
1 cup chopped, peeled apples
½ cup seedless raisins, washed

Combine the first eight ingredients; beat with fork until light and fluffy. Combine the ingredients for the stuffing.

Spread half of the meat mixture over bottom of ungreased 9-inch cake pan. Spread stuffing over meat. Spread rest of meat mixture over stuffing.

Bake in hot oven, 400 degrees, for 1 hour. Serves 6.

Honorable Mention

Mrs. Raymond Jarrell, a reader from Pittsburgh, Pennsylvania, makes meat ball soup for Christmas Eve, dropping tender balls of seasoned ground meat into simmering onion soup. The combination is succulent.

With it, she serves chilled green beans on lettuce and sprinkles the beans with minced onion and a special dressing. You'll find her soup and dressing recipes here:

Meat Ball Soup

2 packages dehydrated onion soup
1½ pounds ground beef
2 eggs
1 medium onion, minced
2 teaspoons Worcestershire sauce
⅛ teaspoon marjoram
1 teaspoon salt
¼ teaspoon pepper

Mix meat, eggs, onion, Worcestershire sauce, marjoram, salt and pepper. Form into 16 small balls; roll in cornmeal or flour.

Prepare onion soup by directions, heat to boiling. Drop in meat balls. Reduce heat and simmer until meat balls are done, about 10 to 12 minutes. Serves 8.

Log Cabin Salad Dressing

Mix ½ teaspoon prepared mustard, ½ teaspoon salt, 1 egg yolk; add a few drops of vinegar; beat well.

Add ½ cup olive oil gradually, and a few more drops vinegar. (Use 1 tablespoon vinegar in all.) Add 1 tablespoon chili sauce and serve.

BIBLES REPAIRED

This Bible came to us as shown at left and was returned as shown at right

We can restore your cherished Bibles and old books to new life. If you have all the pages, regardless of the condition of your book, we can nearly always restore it in a strong leather, imitation leather, or other binder. Binding material, color, gold stamping to your requirements.

Write for our descriptive catalog about our book repair and restoration.

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"Thank goodness, the Atkins kid didn't come out today!"

SEWING CORNER

Fashion Flash

9343 SIZES 9—17

Choose a fine wool challis or one of the muted cotton prints to make this fetching frock. It's prefect as a date dress, or for church or town wear. Note the easy tucks and three sleeves versions.

Printed pattern 9343: Junior miss sizes 9, 11, 13, 15, 17. Size 13 requires 5 yards 45 inch fabric.

Send 35 cents in coins for this pattern—add 10 cents for each pattern for first class mailing. Send to:

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Pattern Dept.
P. O. Box 42
Old Chelsea Station
New York 11, N. Y.

Print plainly name, address with zone, size and style number.

Handsome Dessert

A slice of ice cream sandwiched between 2 pieces of chiffon cake with a raspberry and almond topping makes a handsome dessert.

Thaw a package of frozen raspberries, add ⅓ cup sugar and 2 teaspoons cornstarch and cook until slightly thickened. Cool and stir in whole or chopped blanched roasted almonds.

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REAL SPANISH DINNERS
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Paging Youth!

Parents and educators swap friendly blows about the quality of today's schools. Lots of people think the little red school house taught the best lessons. Others believe that today's schools do the best job of readying boys and girls for the world.

If you're between 10 and 20, you're in the middle of this argument; so tell us what you think. Would you make any changes in your school? If so, what?

Write not more than 250 words and try for $5 in our February issue. Address your entry to:

Youth Has Its Say
FLORIDA GROWER *and* RANCHER
P. O. Box 2350
Tampa, Fla.

Your letter must be in the mails by December 28 to qualify.

SHORT CUTS

(A $1 check will be awarded for every Short Cut published.)

Is your baby slow at drinking her milk? Keep the contents pleasantly warm by wrapping aluminum foil around the bottle after it's heated. *Mrs. S.N.D., Largo, Fla.*

° ° °

If hot grease spatters on your blouse or dress as you're cooking, immediately place the garment in cold water. Later wash as usual in soap and warm water. The grease will come out easily. *Mrs. M.Y.C., Nokomis, Fla.*

° ° °

Keep a couple of ice cubes handy when ironing or pressing cottons or linens. To prevent wrinkles as the linens dry out, rub ice cube over drying areas. This dampens just slightly and facilitates ironing. *Mrs. W.A.S., Hutchins, Texas.*

° ° °

Before creaming cold shortening in electric mixer, heat the beaters by placing them in hot water for a few minutes. This will prevent the shortening from clogging and sticking. *Mrs. A.S., North Miami, Fla.*

Plentiful Foods For December

Turkeys, traditionally the kings of holiday menus, will head the plentiful foods list for December, according to the Food Distribution Division of the USDA's Agricultural Marketing Service.

Other items on the December plentiful foods list will include broilers and fryers, apples, cranberries, dates, walnuts, canned ripe olives, canned and frozen peas, peanuts and peanut products, honey, and vegetable fats and oils.

Iron Injection Best for Pigs

WHEN YOUNG PIGS get a single injection of iron to help protect them against anemia, they apparently do better than comparable pigs given iron via three tablets a few days apart.

Such was the finding of recent research at the Kentucky Experiment Station. Kentucky swine specialist C. E. Barnhard reports:

Although there was not much difference in the weight of the two groups of pigs used in the test, blood tests indicated that the injection method gave better protection against anemia than did the tablet method.

In addition, Barnhard notes, there was considerably less labor involved in giving the injections as compared to the labor involved in administering tablets three times.

Results showed that the injection group averaged 10.10 live pigs per litter at farrowing time; the tablet-fed group, 8.30. Injected pigs averaged 2.76 pounds farrowing weight; the tablet-treated group, 3.20 pounds.

The injected group averaged 8.10 pigs per litter raised to three weeks of age. The comparable average for the tablet group was 7.50 pigs.

However the average pig weight was about the same at three weeks of age—11.02 for the injected group and 10.85 for the tablet-treated pigs.

* * *

Control Rodents to Reduce Farm Costs

WITH THE APPROACH of cool weather, rats will seek shelter in barns and other farm buildings.

So . . . cut hidden farm costs with a rat control program, suggests Extension rodent control specialist V. L. Johnson. He estimates that each rat destroys up to 400 pounds of foodstuff annually.

Rats also spread disease, cause fire, and damage buildings by gnawing and digging.

If rats are infesting your property, place poison bait near watering places, damaged produce, and trash piles; under corn cribs, on rafters and in other likely places where rodents feed.

Bait stations must be protected from dampness. This is because rats will not feed on moldy baits.

Johnson also says a "rat-proofing" and a good clean-up program are essential to prevent rats from establishing a nesting place.

* * *

A mistake proves somebody stopped talking long enough to do something.

* * *

Season's Greetings

Send Shoes To Needy Children

CHRISTMAS, now almost upon us, is eagerly awaited by all children.

Most children can hardly wait for Christmas morning to come—they know that under their gaily decorated trees they will find scads of new toys and stockings full of goodies.

Needy children, too, await the coming of Christmas with bated breath. But they don't even dare dream that Santa will treat them as he does their more fortunate brothers and sisters.

All these step-children of fortune do is hope . . . hope that December 25th will not be just another bleak day; hope that some generous, sharing souls will remember them to the extent of giving them usable shoes and clothing.

To most of us, "used shoes" sound about as un-Christmassy as anything can sound. That's because we have money to buy shoes for our children, because each member of our family has at least two or three pairs of shoes.

But to children who must go barefoot during winter, shoes—even used shoes—sound like the most wonderful Christmas gift of all time!

FLORIDA GROWER *and* RANCHER has found many—far too many—cases, in Florida and abroad, where shoes are desperately needed. The accompanying letter, received last month from a pleading parent *somewhere in the State of Florida*, is just one example of the need that exists.

It is on behalf of these needy children that we are appealing to you, our readers: Send us your old shoes, we will see that they get to the proper parties.

Mail the shoes to FLORIDA GROWER *and* RANCHER, Box 2350, Tampa, Florida. Or, if you prefer, you can drop them off at our office: 1306 Grand Central, Tampa.

Contributions of shoes plus some clothing for adults have been received in answer to the appeal in our November issue. But more, many more, contributions are needed.

> *"Dear Sir:*
> *Your November 1958 issue, page 41, mentions a drive for shoes for needy children.*
> *I have a little daughter going to public school who needs a pair of shoes so bad. I also have a son who goes to school, walks a mile each day. I'd be willing to pay the postage if you could send shoes for them.*
> *If you require written proof of my needful asking, I can send you addresses. I don't want to ask for charity here in town because other children have a different feeling toward children needing items.*
> *God bless your good works."*

" . . . *Verily I say unto you, Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me.*"

Matthew 25:40

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Years of experience in working with fertilizers for Florida soils assures you of the very best for your crops, groves, and pastures when you call on WEST COAST.

. . . QUALITY INSECTICIDES IN STOCK

One of our trained field men will be glad to discuss your fertilizer and insecticide program with you.

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OR WRITE: BOX 1094, 35th AT 6th AVE., TAMPA, FLORIDA.

FLORIDA FARM MARKET PAGE

The rate for classified advertising on this page is 15 cents per word, per issue, cash with order

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CITRUS TREES—Make reservations now for coming season's planting. Ocklawaha Nurseries, Lake Jem, Florida.

SUPERIOR CITRUS TREES—Grown on virgin land, certified nematode-free Adequately protected by wind machines for assured delivery. Most varieties available for late Spring and June planting. Registered psorosis-free and xyloporosis-free stock available for Fall 1959. Will bud registered stock on order for 1960 delivery. For further information and quotations call GLendale 2-7541 or write, WARD'S NURSERY, INC. Box 846, Avon Park.

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Nucellar Seedlings

(Continued from Page 15)

every check possible was made in an effort to secure scions from trees which were as near perfect as possible.

Over a period of three years, the

STATE PLANT BOARD official Gerald G. Norman holds the long, spindly limbs of a crossbred seedling. In the foreground are three uniform nucellar seedlings.

trees from which the buds were taken were tested for tresteza, psorosis, tree shape, fruiting habits, fruit quality and shape, leaf shape and composition, and other characteristics.

Beginning on December 15th of each year, and every 30 days thereafter until the fruit was picked, acid tests were made in order to make sure the parent trees were desirable.

Norman expresses confidence in nucellar seedlings and believes they offer a good source of virus-free budwood. He states that the seedlings, whether gametic or nucellar, have great vigor and tend to withstand cold, drought and other abnormalities better than budded trees.

By the aid of certified virus-free budwood, Norman predicts, the average production of citrus can be increased from some 330 boxes to near 1,000 boxes per acre.

* * *

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Editorial Comment

The Small Gift

MANY YEARS AGO in a small town a little boy, the son of a poor sawmill worker, watched a pitifully clothed man huddled against the mill shed. It was a cold evening and it was snowing. It was also Christmas Eve.

As young as this lad was, he knew the pangs of hunger and cold. He pushed his nose against the window pane to hide the tears that ran slowly down his face. His mother and father had surely seen this poor creature but it was not an uncommon sight in that neighborhood and they took little notice. Then, quietly, the little boy went to his room and from his drawer took the small neatly wrapped package his grandmother had given him, which he knew to be a tasty cake. He also knew this might be his only Christmas present.

Timidly he approached the poor man in the yard and with stretched out hand and without speaking, gave him the package. He thought this man would tear open the wrapping and immediately start eating the food which he so badly needed. But the man only looked, almost unbelievingly, into the youth's eyes, holding the cake gently in his large calloused hand. With misty eyes, the man put the other hand into the pocket of his raggety trousers and brought forth nothing more than an old pair of pliers he apparently used as an itinerant mechanic. He searched his pocket again but there was nothing there. Then, ashamedly, he clasped the pliers in the boy's hand. Then he said in a broken voice, "Thank you, Son, and God Bless you. Merry Christmas." He turned and walked away.

The gift of the pliers was more appreciated and useful than the man knew. The lad spent hours each week working on old machine parts in the sawmill yard that had been thrown away. As he grew older, his skill with mechanical parts increased and he still found occasion to use the old pliers that had shown him the way. Years rolled by and this young man became a famous mechanical engineer and inventor. He was able to give much to many for all time and he never forgot the great gift that the poor old man was almost too ashamed to give him.

"And now abideth faith, hope, charity, these three; but the greatest of these is charity."
Cor. 13.13

Nature Lore and Legend

By RUBY ALLGOOD PARIS

Legend of the Mistletoe

NEVER A Christmas comes that I do not gather and wear some sprigs of mistletoe. Not that I am superstitious; I just like the plant.

Legend and superstition, however, surround the mistletoe:

Norse mythology tells us that a mistletoe arrow, made by the evil yet cowardly Loki, killed Odin's son Balder—thereby stirring up a fearsome war in Valhalla which disturbed the entire mortal world.

In ancient Rome, the Druids carefully gathered mistletoe to use it in their rites. But the ceremonious gathering of mistletoe has by no means been limited to those old pagan days.

Even today, the people of Sweden, Switzerland and Wales gather their mistletoe with almost as much careful ritual. They shoot the mistletoe stems with sharp arrows and catch the falling bunches in their left hands. And there are practical reasons for this:

Just how else could one reach the mistletoe, which grows far above reach, unless one shoots it off? Also, the berries must be kept on and not crushed . . . which would surely happen if the sprays crashed to the ground from so high an altitude.

Mistletoe is associated with the Yule-tide in England, America and Australia. It is much used for Christmas decorations in homes, schools and churches . . . another pagan custom we have adopted for modern use.

The peasants of Italy hang bunches of mistletoe from the ceiling to ward off fires. Switzerland uses it to ward off lightning.

In far-off Africa, Walos warriors carry a leaf of mistletoe—known as *tob*—as a protection in battle.

Now we may feel that the Italian, Swiss and Walos are just superstitious in their usages of mistletoe. But perhaps they feel the same way about our uses for this plant at Christmas!

Ever practical, the Japanese grind the mistletoe leaves and use them in medicine.

With all this history behind it, there's bound to be some good in mistletoe. And if the Japanese—who with other Orientals discovered and distilled menthol from the lowly mint—find medicinal uses for its leaves, perhaps we had better look into the situation.

Mistletoe seeds are spread mostly by sparrows, mocking birds, cardinals and mistletoe birds. The tiny seeds stick to the feet and beaks of the birds and are wiped off on the bark of oak, red maple, sycamore and (sometimes) pine trees.

Rooting themselves in the bark, the seeds take water and minerals from their host plants. Science tells us that the mistletoe gets most of its food from the air, not from the host plant. However the host may wither and die if too many mistletoe plants are growing on it.

There are over 500 kinds of mistletoe. These range from the small berried southern type to the large berried scale-like type known as "false mistletoe" that grows on cypress, larch, pine or fir and do considerable damage to our timber crop.

Letters to the editor

Shoe Donors

Dear Editor:

May the blessings of Allah descend always and forever on the heads, hearts and hands of all of your staff who take part in your drive for *Shoes for Needy Children.*

Noted the illustrated appeal in your issue for November, and we are sending a batch of shoes, slippers, and some odds and ends of clothing. Hope some of it is acceptable and useful.

We are grateful to the FLORIDA GROWER *and* RANCHER for providing this opportunity.

Garth and Lucille Cate
Tryon, North Carolina

(We also are grateful . . . grateful that we have warm-hearted readers who respond so generously to an appeal to help others. Our thanks, and the thanks of the people who will be the happy recipients of their gifts, go to Mr. and Mrs. Cate.

(Incidentally, that "batch" of shoes, slippers and clothing filled two cartons!)

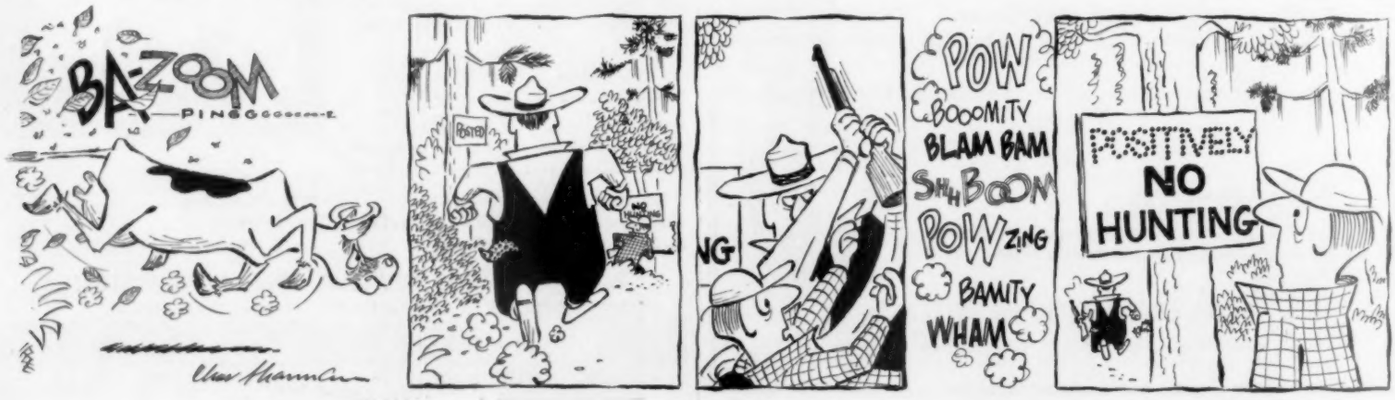
Years of Service

Gentlemen:

My most sincere congratulations to you folks on this (Golden Anniversary) occasion. Let me also add my thanks for the very excellent cooperation which you folks have given us throughout the years.

M. O. Watkins
Director
Florida Agricultural
Extension Service

THUMMER GREEN – – – – *SHARMAN*



Protect Newly-Planted Pine Seedlings from Pales Weevils

DELAYED replanting helps avoid weevil raids on seedlings. So don't be in too big a hurry to replant pine woods that have been cut over or killed by bark beetles or fire.

Such is the advice of Thomas G. Herndon, farm forester with the Florida Agricultural Extension Service. He offers the following information and tips on how to protect newly-planted pine seedlings from pales weevils (pitch-eating weevils).

Tests by the USDA's Forest Service in east Texas show that weevil attacks can usually be avoided if a period of time is allowed to pass before harvested or burnt-over acreage is replanted.

Weevils breed in the bark and stumps of dying trees. And these insects, Herndon explains, will kill young seedlings nearby by feeding heavily on their bark and the cambium layer beneath.

After six to nine months, stumps cease to attract weevils. Seedlings planted then will escape heavy damage.

If immediate replanting is necessary following a summer, fall or early winter cutting, insecticides should be used to protect the young plants.

Herndon suggests dipping the above-ground parts of the seedlings in a 1% suspension of benzene hexachloride or a 1% water emulsion of aldrin. This should be done before planting. These chemicals should be kept off the roots. And, since they are poisonous, they should be handled with care.

Natural seedlings—those that grow up by themselves—are usually immune to attack by weevils for about a year. After that, they are as vulnerable as planted stock.

Cuttings made at the time of seedfall will permit natural new growth to get a good start. By the time the new seedlings are big enough to be vulnerable to attack, weevils will have left the old stumps.

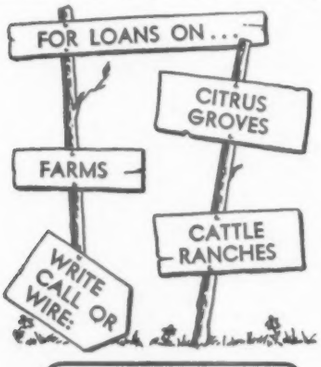
Heavy damage, however, can be expected to one- and two-year-old natural seedlings in newly cut-over areas.

Beef Outlook

It is expected that the number of beef cattle in America on January 1, 1959 will be 62,150,000. This total will be 3% more than on New Year's Day of 1958.

Substantially more calves will be withheld from slaughter, experts predict. Some of these calves will go into breeding herds; some into feed lots.

Season's Greetings



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EXPANSION PLANNED: Max Smith of Lutz—shown here with his younger son Charlie—plans to double his 8,000 bird laying flock next year after his older son David is discharged from the Armed Forces.

Perseverance Pays Off Lutz Poultryman Proves

"I 'VE BEEN THROUGH good years and lean years. I've received high prices and low prices," reports Max Smith of Lutz.

"One time I even sold large eggs for a measly 20 cents per dozen. That was *really* hitting the rock-bottom of prices.

"But, despite all the difficulties, I always made some money. That's why I still insist:

"Florida's poultry business offers a good future to people who are not afraid of hard work and who are willing to closely supervise their operations."

One of the worst things ever to hit the industry, Smith recalls, was the epidemic of Newcastle disease. This really played havoc with the birds for a couple of years until the discovery of a vaccine which would control the disease.

A few years ago "in the good old days," the Lutz poultryman continues, feed was half the present price. Cull birds usually brought a dollar for meat when they had finished laying.

However, he hastily adds, birds in those days did not lay as well as do the later strains.

Volume, he maintains, appears to be the only way to counterbalance the present lower margin of profit per bird in these days of high cost. And he is a man who practices what he preaches:

Next year, Smith—who has been in the poultry business in the same location for 21 years—plans to double his 8,000 bird laying flock.

Georgia is really making rapid strides in the egg business, reports the Lutz operator. He toured a number of poultry farms in that state this past summer.

All of the farms visited had at least 25,000 layers; all had their own feed mills and used the restricted feeding program. They washed, graded and packed their eggs in cartons and sold them directly to the chain stores.

Land is cheaper in Georgia, and poultrymen there use large amounts of Negro labor. Negro women, who work at lower wages than can be obtained in Florida, provide much of this labor.

Producers of our neighboring state raise their own replacement pullets on the range with practically no equipment. Smith tells of seeing them feed mash with a common fertilizer spreader. The machine simply scattered the mash on the hard clay, and the pullets ate it there.

For protection against the elements, there were three shelters per acre which would accommodate 100 birds each. These buildings had a roof that sloped in one direction.

In the winter months, two of these sheds are placed facing each other—thereby providing slightly better defense against the weather. These birds raised in the open never come down with respiratory diseases, Smith was told.

The range areas are so rotated that it is occupied by birds every three years. Much of the range land is mountainous and non-tillable.

Because of all the competition, both local and from neighboring states, there is a need for serious-minded Florida producers. At least that is the thinking of Smith and his two sons, Charlie and David, who plan to incorporate the operation as co-owners next year.

David, who will be discharged in February, is currently serving a hitch with Uncle Sam. Charlie, the younger son, is presently employed on the farm. Both boys are well grounded in the poultry business, having worked in it all their lives.

"Pop" Smith says that as quickly as David gets home, he is going to start taking life easier. He plans to shift the responsibility to the two sons.

Then he will take some of the days off that he has been looking forward to for the past 21 years. And he may even sleep late one Sunday morning.

Prominent Florida Poultrymen Have Outstanding Success With DEKALB CHIX

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PRODUCTION IS HIGH AND STEADY

"DeKalb layers have given me wonderful performance. Livability is excellent; production remains high and steady. Also, egg size as well as interior and exterior quality are outstanding throughout their period of lay. My last DeKalb layers peaked at 85%; averaged 80% for 4 months and never went below 50%. The latest DeKalb pullets had 98% livability during 13 weeks. Growth and development was rapid and uniform."—Wm. Fiala, Masaryktown, Fla.

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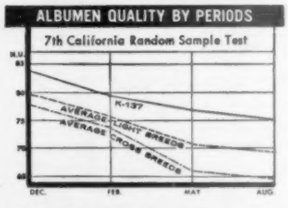
LEAD IN EGG QUALITY



The above graph compares the albumen quality of eggs laid by K-137 Kimberchiks with the average of light breeds and cross breeds in a recent California Random Sample Test. As measured by actual breakout, K-137 eggs averaged 78.7 Haugh units, or 5.6 H. U. better than the average of all entries.

In the 1956-57 New York Central test, K-137's were the only entry that placed in the first quartile for 1) albumen score, 2) egg size, 3) egg production, and 4) income over feed cost.

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"Hort" Society Officers Chosen

S. JOHN LYNCH of Homestead, former Sub-Tropical Experiment Station worker now associated with the University of Miami, is the current president of the Florida State Horticultural Society. He was chosen to succeed Dr. A. F. Camp of Lake Alfred when the group held its 71st annual meeting in Clearwater.

Pictured above with Lynch, who is seated left, are two re-elected officers: R. R. Reed of Tampa, treasurer (standing) and Dr. Ernest L. Spencer of Bradenton, secretary. Other re-elected officers were Ralph P. Thompson and W. L. Tait, both of Winter Haven, editing secretary and publications secretary respectively.

Vice presidents named to head the various divisions of the society were: Dan Richardson of Vero Beach, citrus; Dr. T. W. Young, Homestead, Krome Memorial; William P. Hunger, Alachua, vegetables; Philip Fleming, Bradenton, ornamentals, and W. Cliffort Scott, Winter Haven, processing.

Honorary memberships in the Society were awarded to Dr. George D. Ruehle of the Sub-Tropical Experiment Station, Homestead; M. U. Mounts, Palm Beach County Agricultural Agent, and Charles H. Steffani, retired Dade County Agent.

Florida's Per-Acre Valuation of Farms at All-Time High

FLORIDA FARMING is big business, and evidently a booming one.

In both per-acre valuation of farms and of borrowings for improvements and expansion, Florida is currently topping the national averages by a whopping percentage.

Such are the conclusions drawn from statistics recently published by the Florida State Chamber of Commerce. The agency reported:

On the market, Florida farms were valued at an average of $164 per acre in March of this year. This was $107 above the acreage value of $57 dollars of eight years ago.

This amazing increase, 186%, far over-shadowed the national gain of 27%. Yet back in 1950, the Florida per-acre value was 12% *below* the national figure.

For the next six years, it gained about $10 an acre each year; then $20 an acre in 1957 and 1958. By March of this year, it had pushed ahead of the national average by 63%.

Value of Florida farm real estate was placed at a total of $2,969,000,000 this year. Value of buildings accounted for $576,000,000 of this total.

Based on official estimates of farm mortgage recordings, during the past year Florida farm and grove operators borrowed $89,479,000—an all-time high—for improvements and expansion of lands and buildings.

This figure is 31% above that of 1956. It is also 140% more than the average since 1950.

Nationally farm borrowings declined 6% last year and exceeded the average by only $15.

Lenders of money to farmers in Florida were classified in a business review of the State Chamber's research and industrial division.

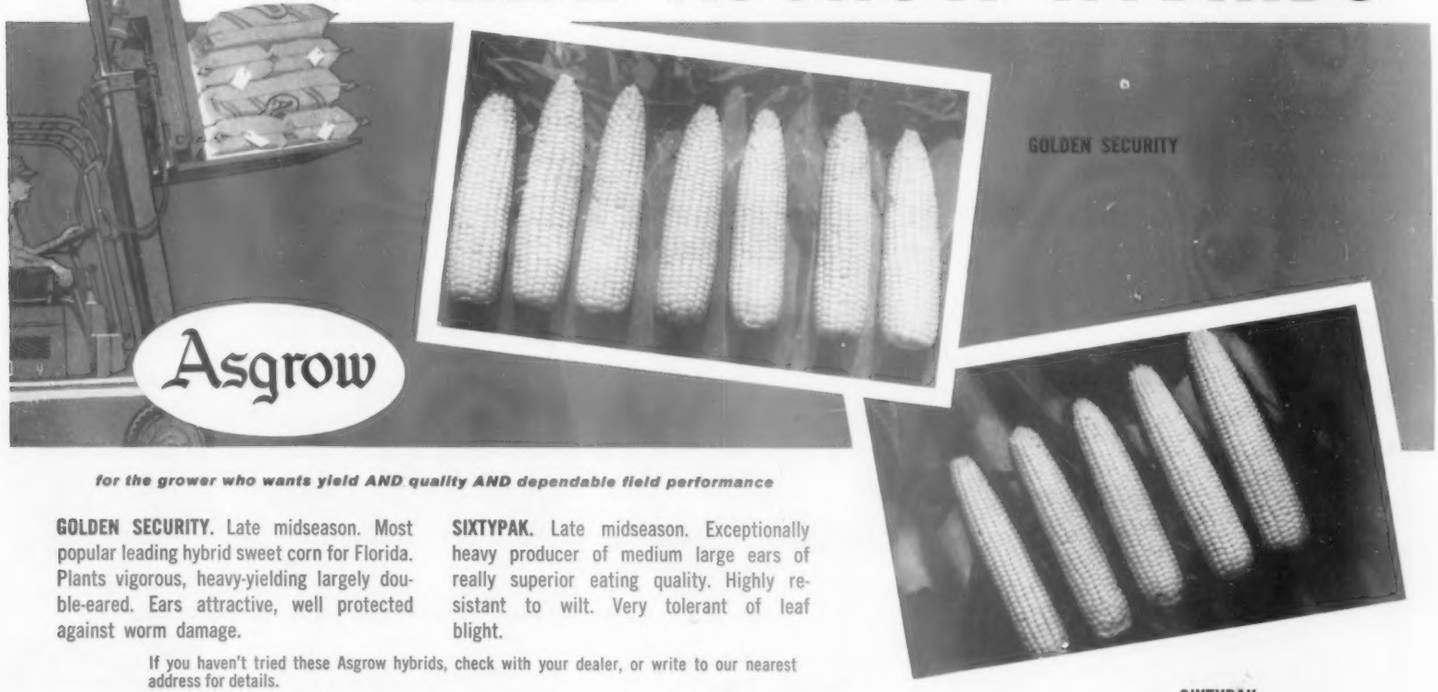
As in former years, individuals were the largest lenders. They negotiated 44%—or $39,371,000—of lenders, including associations

Banks and trust companies loaned 23%, or $20,580,000. The federal land bank accounted for 8% with a total of $7,158,000.

Insurance companies loaned 6% or $4,474,000. Although this is the lowest proportion handled by insurance companies in recent years, it is still somewhat above the 1956 figure.

The 20% balance—$17,896,000—was secured through a combination of lenders, including associations and government agencies.

4 GREAT ASGROW HYBRIDS



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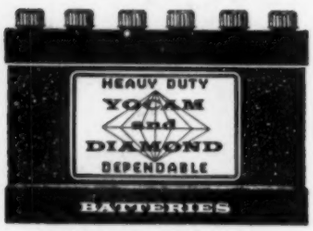

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Florida's Per-Farm Income Fifth Highest in Nation

FLORIDA LED ALL STATES east of the Rockies, and ranked fifth in the nation, in net income per farm in 1957.

The Florida average was $4,319, compared to the U. S. average of $2,232. All other Southern states were below the national average.

States having a larger realized net income per farm than Florida in 1957, according to the U. S. Department of Agriculture, were:

Arizona, $13,233; California, $7,422; Nevada, $5,957, and Montana, $5,143.

Realized net income per farm for other Southern states was:

North Carolina, $1,804; Kentucky, $1,733; Arkansas, $1,592; Virginia, $1,515; Georgia, $1,504; Louisiana, $1,429; South Carolina, $1,334; Tennessee, $1,299; Alabama, $1,180, and Mississippi, $922.

Despite the cold damage of last winter, citrus fruits still brought growers the largest share of Florida's farm income in 1957. Zach Savage, economist with the Agricultural Experiment Station, points out:

Cash receipts from all Florida farm marketings in 1957 totaled $629,358,000 (down $30,897,000 from 1956). Of the 1957 grand total, oranges, tangerines and grapefruit accounted for $203,537,000.

Livestock and livestock products—beef cattle, dairying, hogs and poultry—was second with $170,666,000. This was a $19 million increase.

Vegetables—including potatoes, sweet corn and watermelons—brought $154,920,000 for third place. This amount was some $18 million less than in 1956.

Field crops came fourth. Their total of $50,262,000 was nearly $2 million less than the preceding year.

Greenhouse and nursery products, a major source of receipts in recent years, brought $33,292,000. This was nearly $1.5 million more than in 1956.

Receipts from forest products, $11,090,000 last year, were almost double the $6,104,000 received in 1956.

Total cash receipts, by commodities, received by Florida farmers in 1957 are listed below. Also noted, in the third column, is the amount of increase or decrease from 1956 receipts.

Fruits and Nuts	**$209,128,000**	**Down:**	**$36,914,000**
Oranges & Tangerines	$165,112,000	Down	$37,260,000
Grapefruit	38,425,000	Up	$2,776,000
Strawberries	1,591,000	Down	$1,826,000
Avocados	1,361,000	Up	$158,000
Limes	1,098,000	Down	$508,000
Pecans	708,000	Up	$126,000
Cantaloupes	302,000	Down	$330,000
Others	531,000	Down	$50,000
Livestock & Livestock Products	**$170,666,000**	**Up:**	**$19,058,000**
Dairy Products	$73,665,000	Up	$8,911,000
Cattle & Calves	45,437,000	Up	$6,622,000
Eggs	21,622,000	Down	$410,000
Broilers	6,512,000	Down	$799,000
Farm Chickens	1,558,000	Down	$431,000
Turkeys	1,482,000	Up	$329,000
Others	4,496,000	Up	$417,000
All Crops	**$471,534,000**	**Down:**	**$51,445,000**
Tomatoes	$45,693,000	Down	$8,811,000
Tobacco	19,219,000	Down	$1,066,000
Snap Beans	18,563,000	Up	$792,000
Celery	14,178,000	Up	$2,147,000
Sweet Corn	13,780,000	Up	$202,000
Green Peppers	13,398,000	Up	$292,000
Potatoes	13,259,000	Down	$11,018,000
Watermelons	13,242,000	Down	$1,090,000
Sugar Cane for Sugar	10,395,000	Up	$1,157,000
Cucumbers	10,300,000	Down	$29,000
Cabbage	5,992,000	Up	$846,000
Peanuts	4,145,000	Down	$2,229,000
Escarole	2,493,000	Down	$568,000
Corn	2,221,000	Up	$279,000
Soybeans	2,087,000	Up	$462,000
Eggplant	1,752,000	Up	$85,000
Cotton Lint	1,636,000	Down	$594,000
Lettuce	1,346,000	Down	$509,000
Tung Nuts	1,087,000	Up	$242,000
Hay	704,000	Remained the same.	
Green Lima Beans	582,000	Down	$89,000
Cauliflower	341,000	Down	$267,000
Others	8,658,000	Down	$246,000

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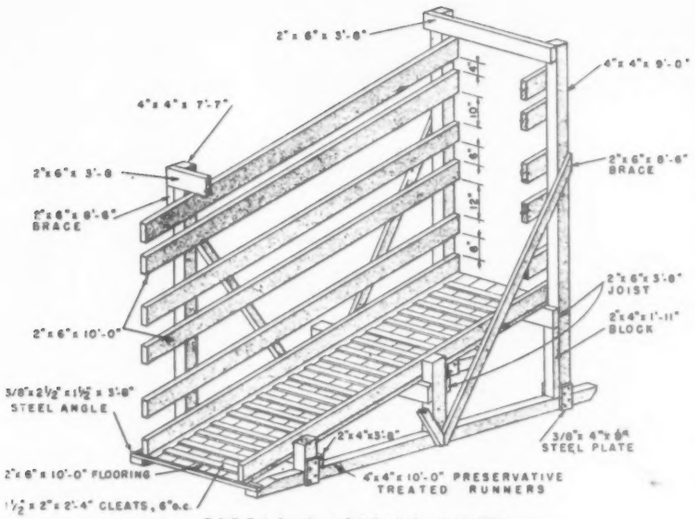
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PORTABLE LOADING CHUTE

Good Plans for GOOD BUILDING

By T. C. SKINNER
Extension Agricultural Engineer
Florida Agricultural Extension Service

Cattle Loading Chute

LOADING CHUTES are a necessity in almost every cattle operation. And they are very simple to construct.

Yet, each year, many cattle in Florida are injured in loading and unloading operations—because of a poorly designed or constructed loading chute.

In constructing a loading chute, there are several important factors to consider: (1) inside width of chute, (2) slope of floor, (3) height of floor, and (4) type of footing provided animals.

Should any of the above factors be disregarded in constructing a loading chute, it will most likely prove unsatisfactory and be a hazard to animals using it.

A floor that is too steep or that does not give good footing to the animal is frequently responsible for animals falling in the chute. A chute that is too wide will tend to cause animals to try to turn around in the chute.

Four types of loading chutes (including the portable chute shown above) which meet the requirements of a well-designed chute, and will prevent the difficulties referred to, are described in Extension Plan 5793. Also available is Plan 5852 which shows the construction of a variable height loading chute.

Both plans may be obtained through your local county agent or by contacting the writer.

Turning Cover Crop Feeds Soil Microbes

TURNING UNDER a cover crop is like putting money in the bank. So . . . if you haven't already planted your winter cover crop, better do so without delay.

Dr. F. B. Smith, Agricultural Experiment Station soils department head, says turning under a cover crop feeds tiny soil organisms called microbes. He adds:

"Without organic matter furnished by decaying plants, microbes in the soil starve. And without microbes, the soil is poor and nonproductive."

Cover crops, when turned under, prevent loss of plant food through leaching and improve fertility. They also reduce damage from wind and water erosion, and increase crop yields.

In addition, cover crops can serve a dual role. Oats, for example, serve well as a supplemental grazing crop before being allowed to produce a grain.

Some cover crops can be grazed before they are turned under for green manure.

Recommended for cover crops are clover, lupine, hairy indigo, beggarweed, sesbania, peas, and native grasses.

Farmers cannot afford to grow clean cultivated crops year after year. This is because clean cultivation "burns" out the organic content of the soil.

Burning up organic matter worth thousands of dollars is just as bad as burning up a barn worth an equal amount of money, according to Dr. Smith.

Season's Greetings

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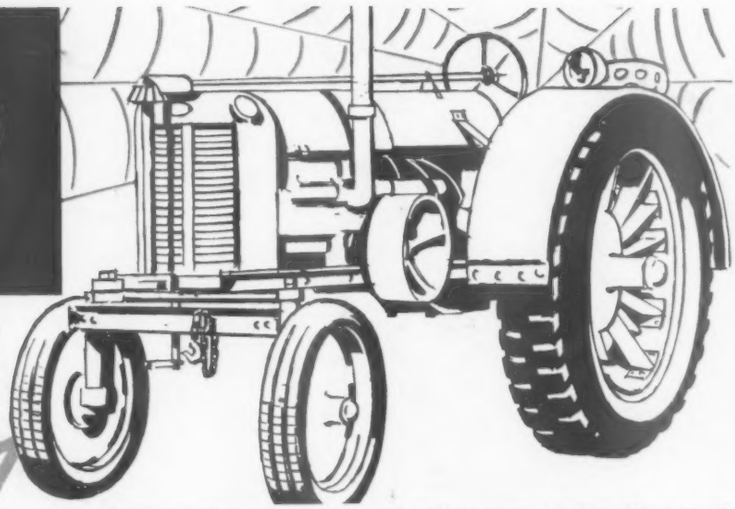

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